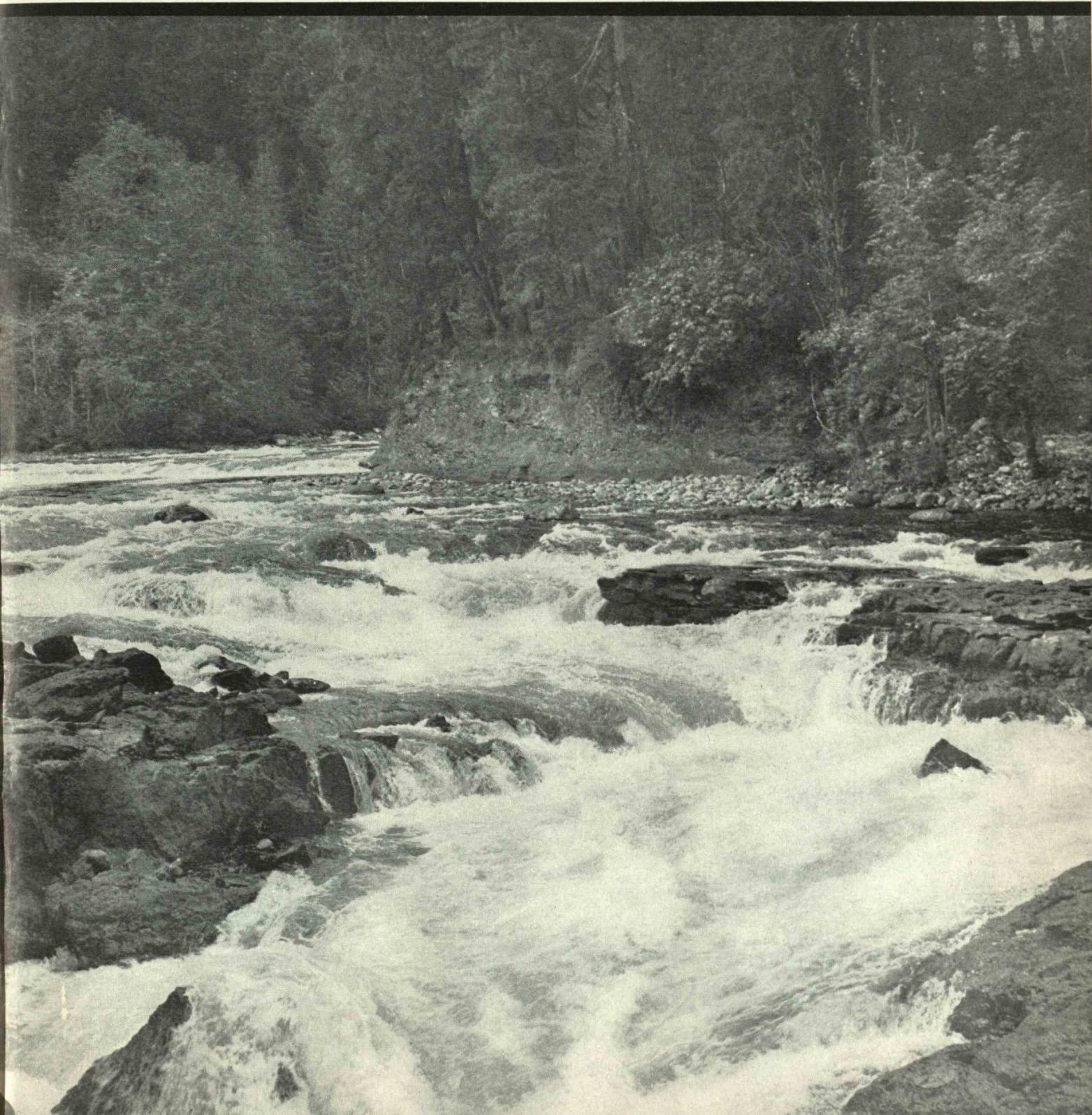


*April 1947*

# TECHNOLOGY REVIEW

Title Reg. in U. S. Pat. Office



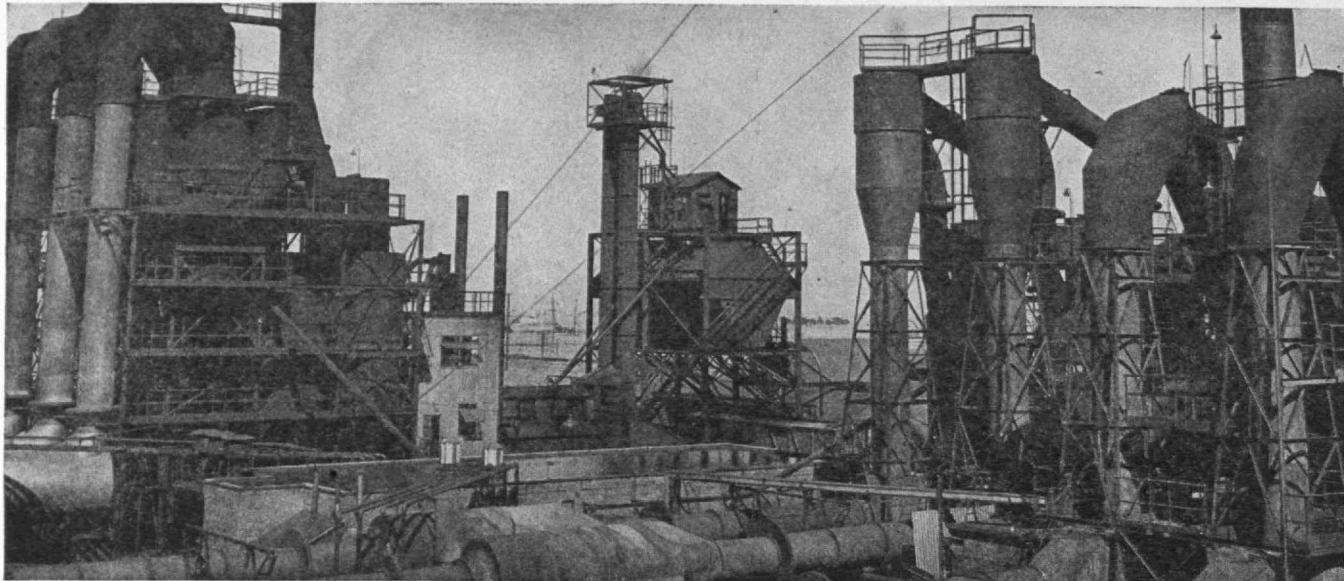
# technology review

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*Natural Gas*  
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*Charcoal*  
*Carotene*  
*Chlorophyl*

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## Here's What **NORTON** Makes . . .

*How Many  
Are You  
Using?*

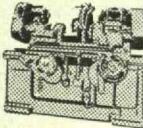
**NORTON COMPANY**  
Worcester 6, Mass.

### Abrasive Products



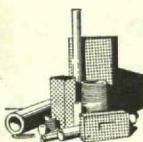
Grinding wheels of ALUNDUM\*, CRYSTOLON\* and diamond abrasives; discs and segments; bricks, sticks and hones; mounted points; abrasives for polishing, lapping, tumbling and pressure blasting; pulpstones.

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A varied line of machines for production-precision grinding and lapping and for the tool room — including special machines for crankshafts, camshafts, rolls and car wheels.

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High temperature refractories—grain, cement, bricks, plates, tile, tubes — for metal melting, heat treating and enameling; for ceramic kilns; for boiler furnaces and gas generators; for chemical processes; refractory laboratory ware; catalyst carriers; porous plates and tubes.

### Norbide\*



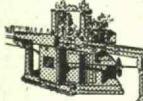
Trade-mark for Norton Boron Carbide — the hardest material made by man. Available as an abrasive for grinding and lapping; in molded products for extreme resistance to wear — especially effective for precision gage anvils and contact points; and for metallurgical use.

### Norton Floors



ALUNDUM\* Floor and Stair Tile, ALUNDUM\* Ceramic Mosaic Tile and ALUNDUM\* Aggregates to provide permanently non-slip (wet or dry) and extremely wear-resisting floor and stair surfaces.

### Labeling Machines



Single and duplex automatic labeling machines for applying labels and foil to beverage bottles and food, cosmetic and drug containers.

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Sharpening stones and abrasive papers and cloth for every use of industry and the home craftsman. Products of the Norton Behr-Manning Division, Troy, New York.

\*Trade-marks Registered U. S. Patent Office

**N O R T O N**

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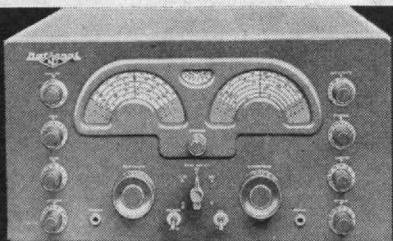
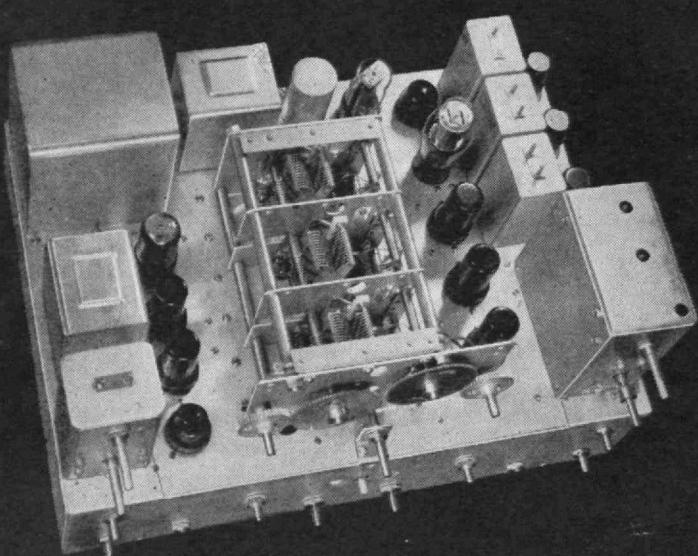


Hams around the world have been National's collaborators in creating the NC-173—ready now after five years of intensive research. Here are some of the advantages this 13-tube superheterodyne receiver offers:

- The NC-173's newly designed adjustable threshold double diode noise limiter—working on both phone and CW—has an extremely high limiting efficiency because of the short recovery time.
- Voltage regulated circuits give the NC-173 high stability and less drift for changes in powerline voltage. The pitch of code characters barely changes—even over extended listening periods.

- The S-meter circuit allows signal strength recordings to be taken on either phone or code.
- Works equally well on coaxial feed-line, single-wire, directional or balanced antenna.
- AC powered. Will also operate on battery for portable or emergency use—110/120 or 220/240 volts, 50/60 cycle. Frequency range .54 to 31 and 48 to 56 MC. (Includes calibrated band spread on 5, 10, 11, 20, 40 and 80 meters).
- Ask your dealer to let you see and hear the new moderate-priced NC-173.

**IN ANSWER TO HAMS' DEMANDS**



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**NATIONAL**  
COMPANY, INCORPORATED  
MALDEN, MASS.

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**CAST ALNICO II**

**CAST ALNICO III**

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**SINTERED ALNICO**

*another step towards a complete line of permanent magnet materials . . . .*

## SINTERED ALNICO

In general SINTERED ALNICO MAGNETS do not compete with, but rather supplement, magnets produced by the cast method to widen the scope of potential permanent magnet applications.

Alnico magnets weighing roughly one ounce or less should be produced by the sintered method.

Heavier magnets of more intricate shapes can be produced. For some applications Sintered magnets are more economical because:

1. Magnetic characteristics are practically the same as Cast Alnico.
2. Sintered Alnico is a fine-grain, homogeneous material which has more uniform flux density, is easier to grind, and provides better surface finish.
3. Sintered Alnico magnets can be produced to closer dimensional tolerances:

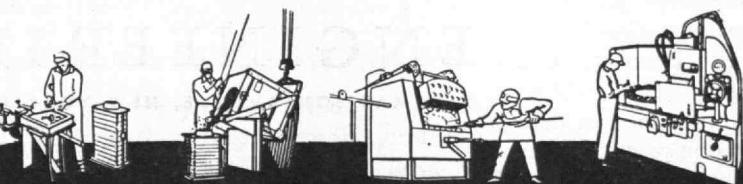
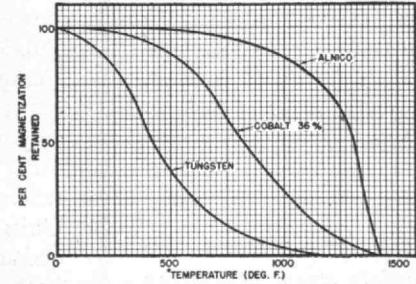
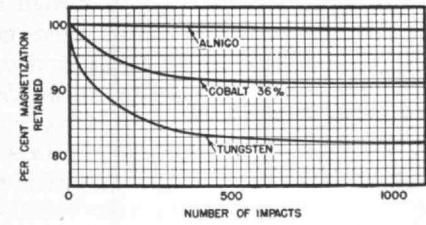
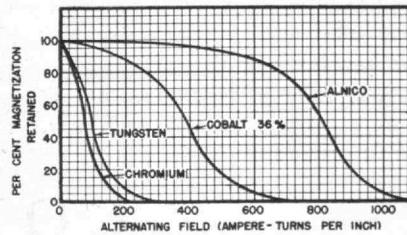
**SINTERED ALNICO II**  
 0.000 to 0.125 — + .005  
 0.126 to 0.625 — + .010  
 0.626 to 1.250 — + .015  
 1.251 to 3.000 — + .062

**CAST ALNICO II**  
 0.000 to 2.00 —  $\pm 1/64$   
 2.0 to 4.0 —  $\pm 1/32$   
 4.0 to 6.0 —  $\pm 3/64$

- Grinding can in many applications be eliminated.
4. More intricate shapes, including holes, inserts, etc., are more feasible.
  5. Transverse modulus of rupture is several times greater.

All Alnico, and particularly Sintered magnets, have very high values of Coercive Force (which is the capability of resisting demagnetization or loss of magnetism due to stray fields and from heat and vibration).

The curves show roughly the effect of these demagnetization factors on Alnico compared to other alloy steels.

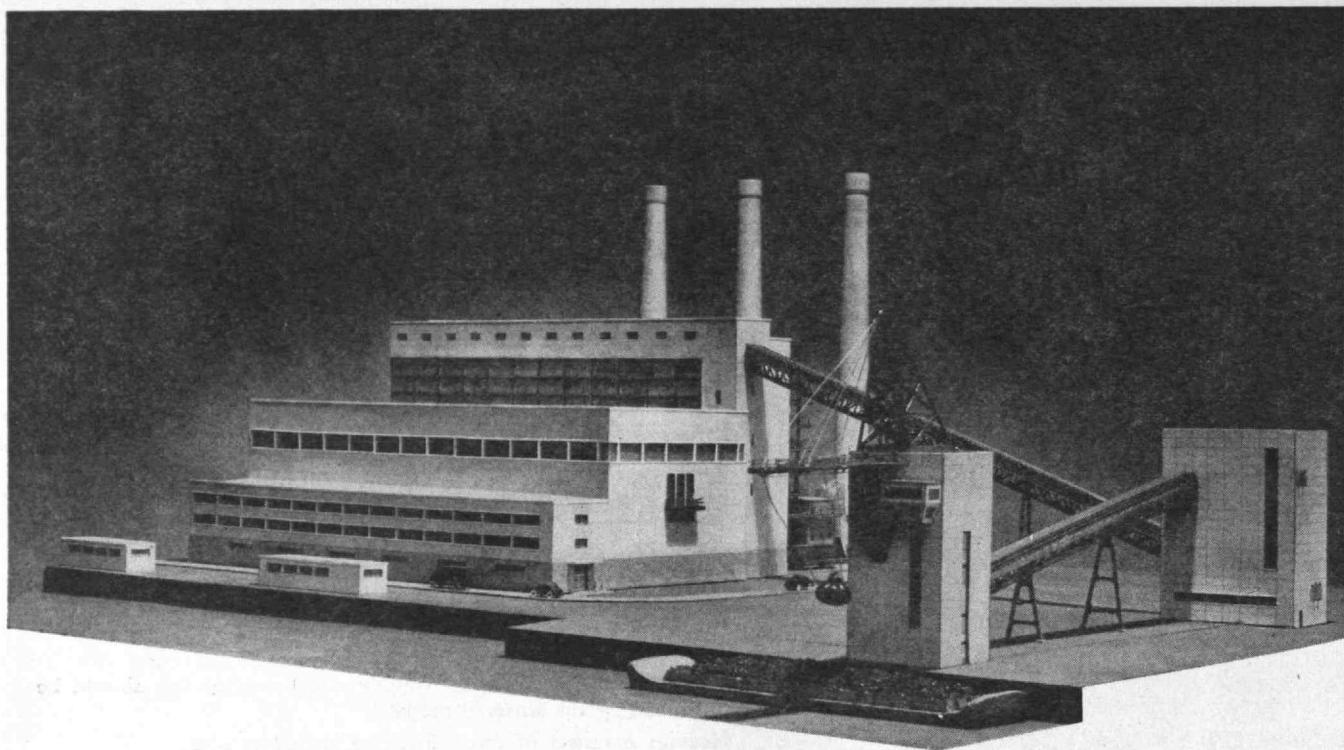


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SUBSIDIARY OF ALLEGHENY LUDLUM STEEL CORPORATION

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Specialists in the manufacture of PERMANENT MAGNET MATERIALS



## *Steam will be hotter — at Sewaren*

*These three factors are the unwritten plus-values in every C-E contract —*

**Knowledge** — to solve today's, and tomorrow's steam generating problems.

**Experience** — to interpret, from a world-wide background in every important industry, the specific needs of each installation.

**Facilities** — to manufacture complete steam generating units for every requirement, from 30 boiler horse power up to the largest.

In a power plant, steam temperature has a direct effect on economy and efficiency. Higher temperatures mean lower fuel cost and greater efficiency. But progress has trodden on the heels of the metallurgists and designers. Twenty years ago 750° F was a daring experiment. Today, with new alloys and improved designs, steam temperatures have passed the 1000° mark.

At Sewaren, New Jersey, the newest power station in the Public Service Electric & Gas Company system, steam will be generated . . . for the first time in power station practice . . . at 1050° F. The initial section of this station will house three huge C-E Steam Generating Units supplying steam at this temperature and at a pressure of 1500 pounds per square inch to three 100,000-kilowatt turbine generators.

The end, of course, is not in sight. Still higher steam temperatures will permit still

greater economy and efficiency in power generation as soon as metallurgists can provide boiler and turbine designers with suitable materials. Combustion Engineering has played, and will continue to play, a leading part in this development. C-E was the first to design and build a boiler unit to operate

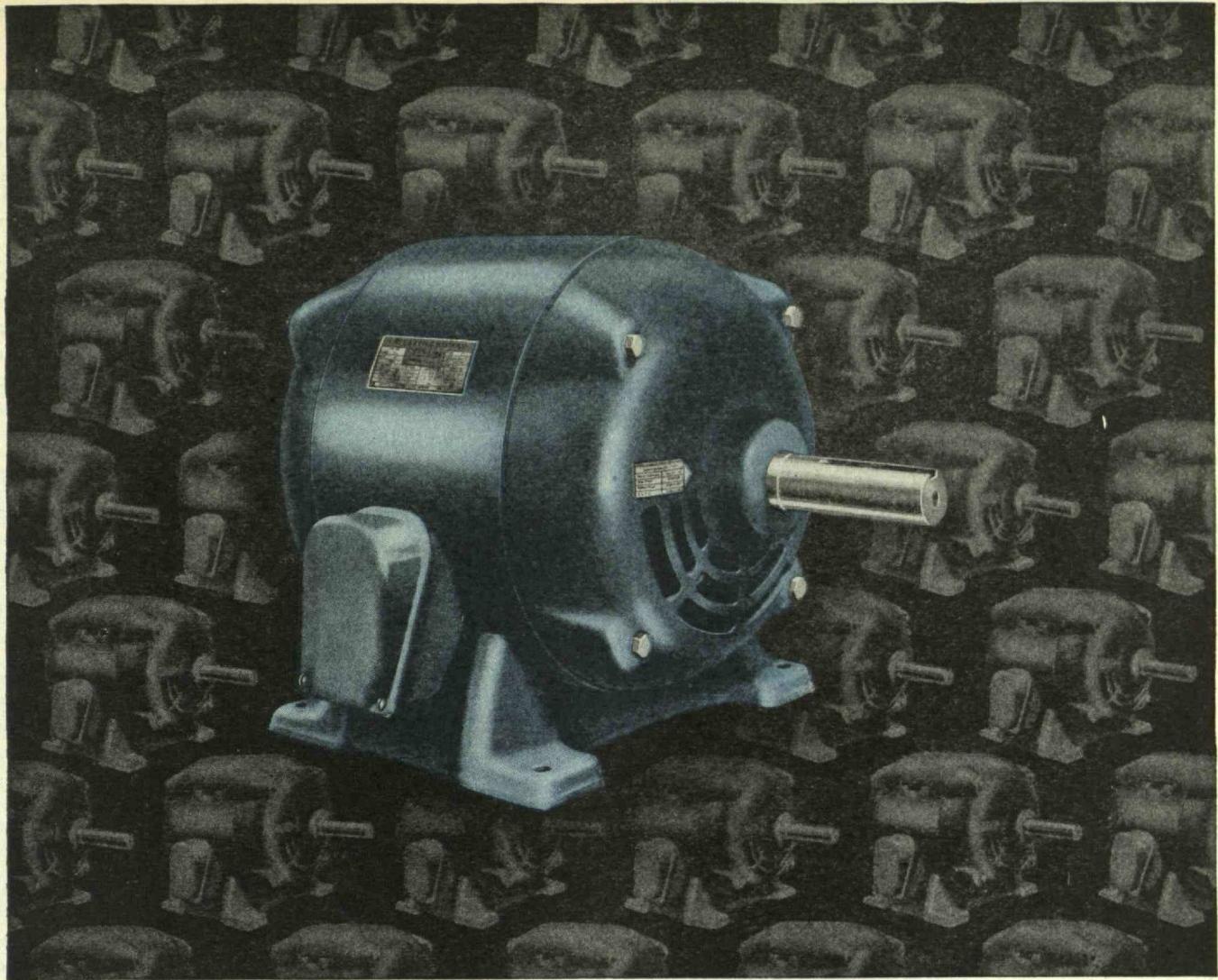
## COMBUSTION ENGINEERING

200 MADISON AVENUE, NEW YORK 16, N. Y.

at a steam temperature above 900° F. It is again first in the range above 1000° F.

And the same engineering vision that has aided so materially in the development of high temperature units is reflected in C-E steam generating equipment for all industry, from units of 30 boiler horse power up to the largest yet built.

B-116



## How to make one motor fit all user-ideas

For years, motor users complained that no one motor had *all* the features they wanted most.

Westinghouse engineers surveyed motor users to find out exactly what they needed . . . and then tailored an entirely new motor to fit those requirements.

The result is the new, outstanding Life-Line motor that has more benefits users asked for than any other motor made today. For example, it is the first motor that:

### **1. Requires no lubrication for at least 5 years**

This means more to the user than just the elimination of lubricating. It lets him use motors in his production line wherever they fit best, without regard to easy access for frequent servicing.

### **2. Is much smaller than predecessor**

What's more, it's lighter, more rigid and can withstand greater impact because of the all-steel frame. All of these benefits offer important advantages to every motor user.

### **3. Produces 134% more power per pound**

Despite its lighter weight and smaller size, the new Life-Line motor gives users 134% more power per pound of weight.

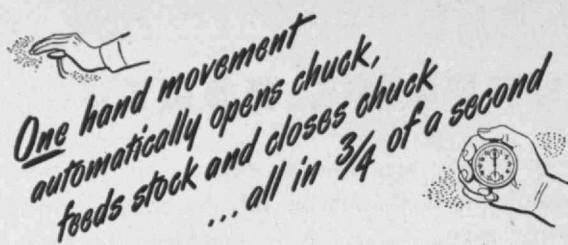
The exclusive Life-Line motor is a prize example of the way Westinghouse studies the needs of industry and develops equipment to answer those requirements. It's part of Westinghouse planned research in every field of science to give industry—and you—better products.

J-99672



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Write for illustrated catalog on Nos. 0, 1, and 2 Brown & Sharpe Wire Feed Screw Machines. Brown & Sharpe Mfg. Company, Providence 1, R. I., U. S. A.



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Write for Bulletin S-4611

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ELTON E. STAPLES '26, District Manager, Cleveland

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## THE TABULAR VIEW

**Tumbling Waters.**— The cover for this issue of The Review is from a chlorobromide print originally exhibited at the Technology Galleries by SHIRLEY M. HALL of San Marino, Calif. Although it is not every month that we are privileged to reproduce the work of a fellow of the Royal Photographic Society, several of Mr. Hall's prints have appeared in The Review's pages during the past year, with benefit to this publication and, we hope, with advantage to the photographic artist. The Review takes this opportunity to express the hope that the work of many another may be reflected from the pages of its future issues.

**For All to See.**— Television continues to appeal with tremendous interest to the vast majority of people in this country, even though the decade-old promise of early widespread use of the new visual agency has not, even yet, materialized. But if it has thus far failed to make its entry into all but half a dozen of our largest cities, if it is still waiting to round that famous corner, television has nevertheless already made substantial contributions to technical progress in electronics, wire and radio communication, and radar, as is recorded (page 333) by DR. V. K. ZWORYKIN, associate director of the R.C.A. Laboratories.

**Paving the Way.**— Back of the successes of our armed forces lie months of planning, preparation, and engineering construction, all of which are urgently needed to pave the way for the culmination of modern tactical operations. Drawing upon the rich background of navy experience, built up since his graduation from the Institute in 1917, COMMODORE W. MACK ANGAS adds to the list of articles he has written for The Review to present his vivid account (page 337) of the splendid work of the Seabees of the Seventh Fleet, described as providing the "Stepping Stones to Victory."

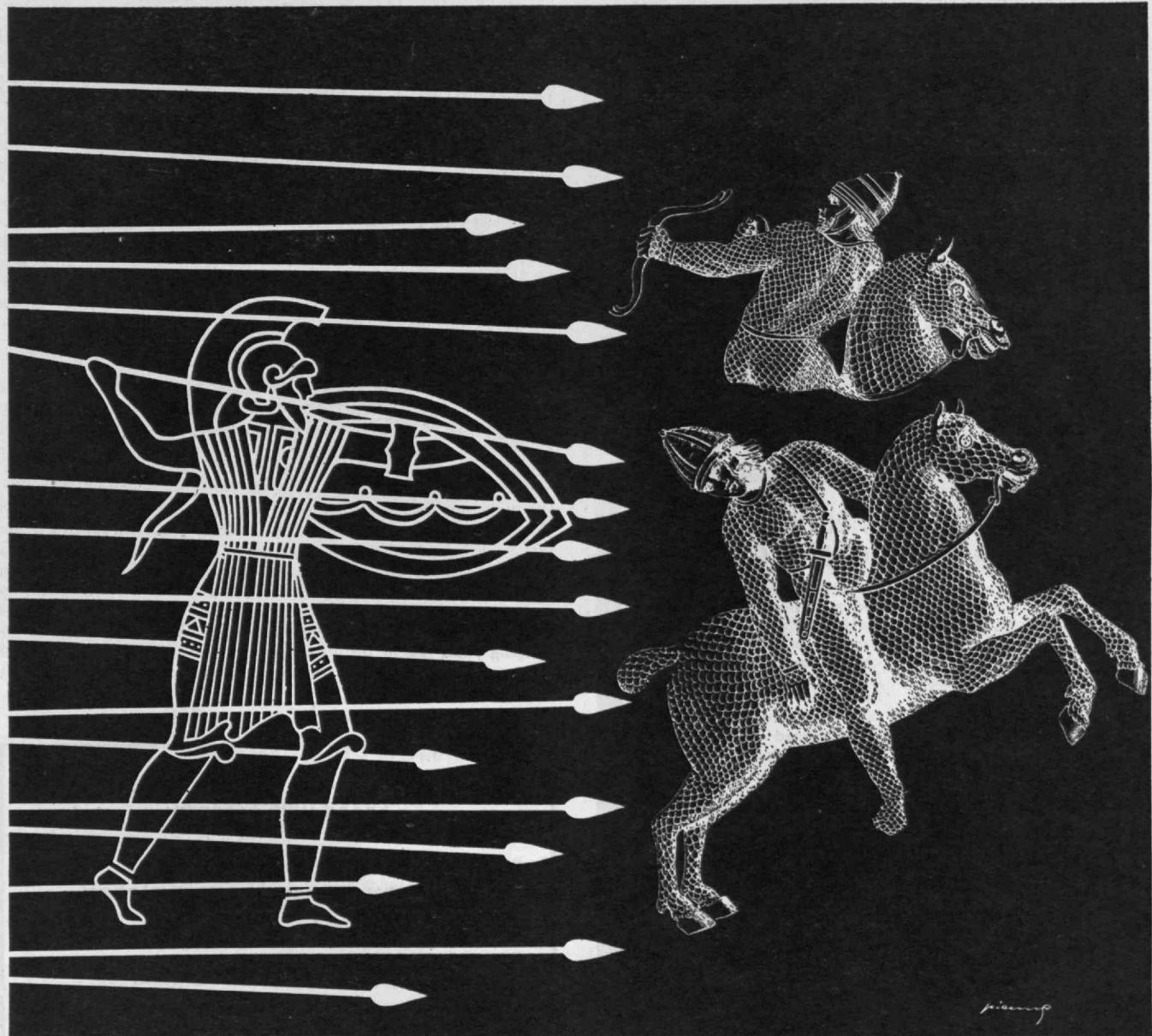
**City Slickers.**— Pursuing his favorite topic of social movements and the human aspects of modern industrialism, PAUL MEADOWS outlines (page 341) the difficulty which the city dweller finds in becoming a significant human being. Although viewing the problem with the detached point of view which might be expected from a professor of sociology at the Montana State University at Missoula, Dr. Meadows has had at least one chance to observe, firsthand, the effects of metropolitan industrialism in the Chicago area while studying for his doctorate at Northwestern University.

**Error of Our Ways.**— Although based on observations in the field of anthropology, in which he is recognized as scholar and skilled writer, the admonitions of M. F. ASHLEY MONTAGU (page 345) are equally valid, and applicable, in any field of human endeavor. The errors into which man has sometimes been led are particularly disturbing and significant to those in scientific pursuits. Dr. Montagu, a frequent contributor to The Review, is associate professor of anatomy at the Hahnemann Medical College and Hospital of Philadelphia.

## THE MACEDONIAN SURPRISE PARTY

When the proud Persian hordes plunged headlong at Philip of Macedon's army, they were dumped into the minor leagues by an entirely new strategy, the phalanx: a solid wall of warriors sixteen ranks deep. Strength-in-depth withstood and defeated the impact of an over-confident enemy.

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★★★★★ **GEARS**

## MAIL RETURNS

### *Hobgoblins in the Library*

FROM CHARLES H. BLAKE, '25:

In his article "The Wreck of Matter and the Crush of Worlds" in the November, 1946, issue, John Burchard has given an excellent summary of the real and increasing problems which face those who have to deal with the still-growing output of "literature." One can take no real exception to anything he says. Even so, I am moved to raise one doubt and to underline one problem.

The doubt pertains to the validity of extrapolations of the growth curve of literary output. We know that the growth rate of literary output has increased within historic times but it is contrary to all evidence on population growth to suppose that it will continue to increase geometrically for an indefinitely long time. In view of the attained or approaching population peak of the western nations, I raise the question whether, even with due allowance for continued population growth in the eastern nations, we are not fairly near the peak of literary growth rate. Please note the distinction between growth and growth rate; even if the rate is stationary, the annual increment may still be appalling. Let the librarians give some thought to making real and meaningful extrapolations rather than raising hobgoblins.

The essence of the whole matter is to render accessible what exists. It is suggested, as often before, that the solution is a business machine system. Burchard recognizes, and it cannot be too often emphasized, that the crux of the problem is not the machine but the brain governing the machine. I venture to suggest that only a small fraction of productive workers have both the temperament and the type of mind that would make it possible for them to give even a fraction of their time to being the brain behind a machine.

The problem of punching a card is more complex than it appears at first sight. Even the question of how facts are classified has no simple or routine solution. I remember vividly the distress of one of the men from the Center of Analysis at M.I.T. who consulted me in quest of a "formula" for classification, and was told that the biological taxonomist had no such formula and considered each case on its own merits.

It is hardly necessary to stress the foremost biological difficulty, the very number of entities, their shifting ranks and positions, and changes of view as to synonymy. We need only mention that there are said to be over 160,000 generic names of animals in current use and untold thousands of synonyms for them. I have just taken down Tuthill's account of North American jumping plant lice and find 25 synonyms against the first 10 generic names. Most of these synonyms are more or less frequent in the literature as valid names, either for jumping plant lice or for other insects. The problem of tying these synonyms together by cross references becomes worse than the straight indexing.

(Concluded on page 354)

### Speed with Economy

We have recently completed  
our 17th contract for  
**R. H. MACY & CO., INC.**

whom we have had the pleasure  
of serving since 1921

**W. J. BARNEY CORPORATION**  
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**INDUSTRIAL CONSTRUCTION**

Alfred T. Glassett '20, Vice President

"... Ignorance is the curse of God, knowledge the wing wherewith we fly to heaven." —SHAKESPEARE



## Why some things get better all the time

HOOP SKIRTS AND PRINCE ALBERTS are only fond memories now. Far smarter the styles of today . . . and equally striking are the constant *improvements* in the *quality* of clothing.

There now are beautiful synthetic fabrics, in stunning variety—all made possible by chemistry. And woolens, cottons and other fabrics are processed and dyed more effectively—thanks to special new chemicals, and equipment of stainless steel. There are eye-catching hat decorations, smartly styled footwear, buttons, belts and suspenders of colorful long-life plastics. And rainwear of vinyl plastics provides new comfort and protection in stormy weather.

Clothing for just about any occasion is today more attractive and more serviceable than ever before . . . because it is made of things that are *basically better*.

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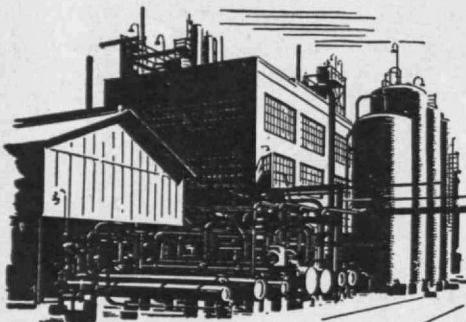
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Lummus engineers are available for a thorough study of individual problems. They are ready to project processes through laboratory and semi-commercial operation, and equipped to determine construction and operating costs for a thorough consideration of the economics of each proposal.

Are you interested in modern, low-cost lubricating oil plants?

### THE LUMMUS COMPANY

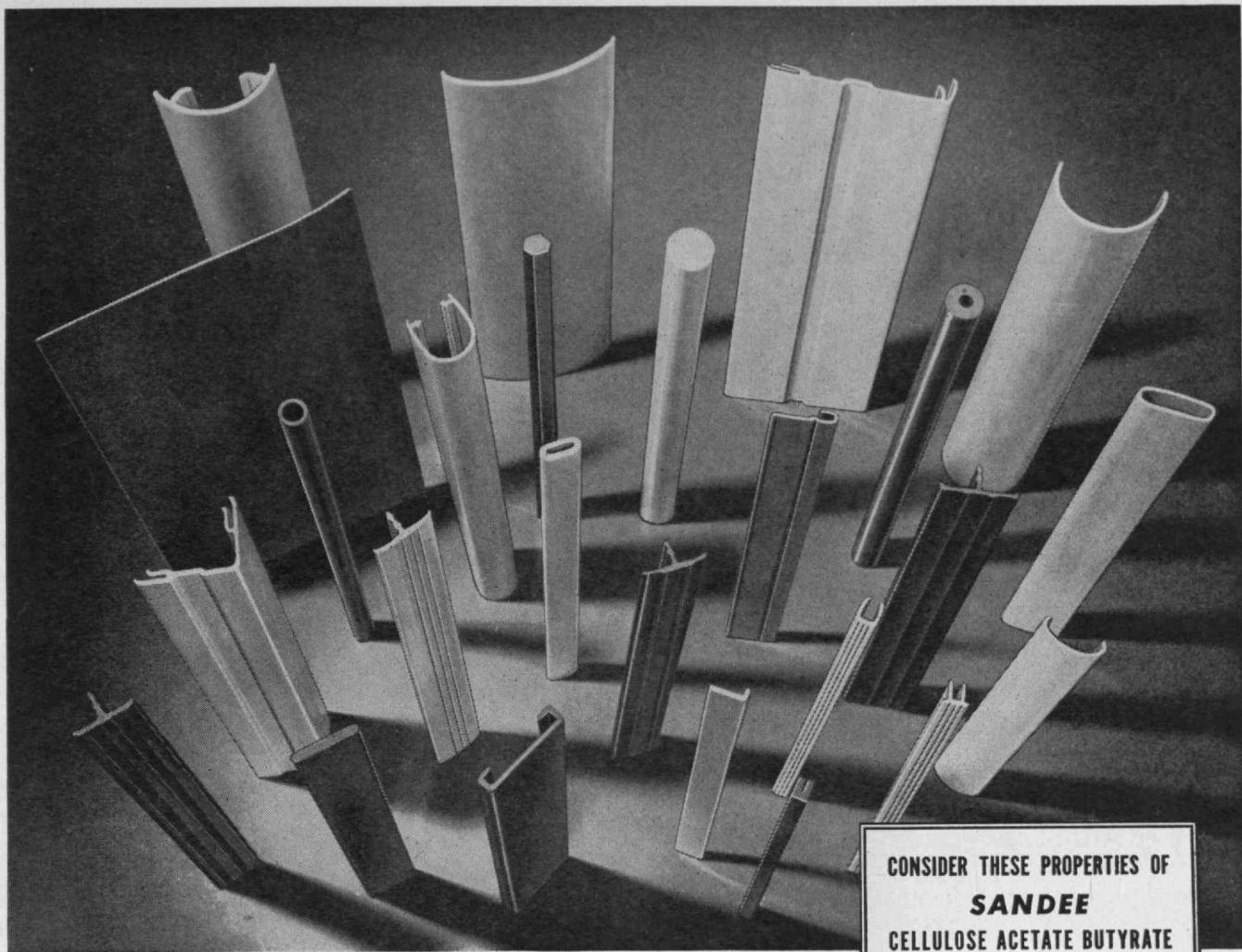
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| 8. Burning Rate          | —Slow                             |
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On your automobile, as on a super-bomber, Goodyear Tires mean greater safety, longer wear. This is another reason why it's true today — as it has been for 32 years — "More people ride on Goodyear Tires than on any other kind."

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*Photo by Harold M. Lambert*  
*The Early Bird*

VOLUME 49

NUMBER 6

# THE TECHNOLOGY REVIEW

TITLE REGISTERED U. S. PATENT OFFICE

EDITED

AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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*From a photograph by Shirley M. Hall*

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*Relating to the Massachusetts Institute of Technology*

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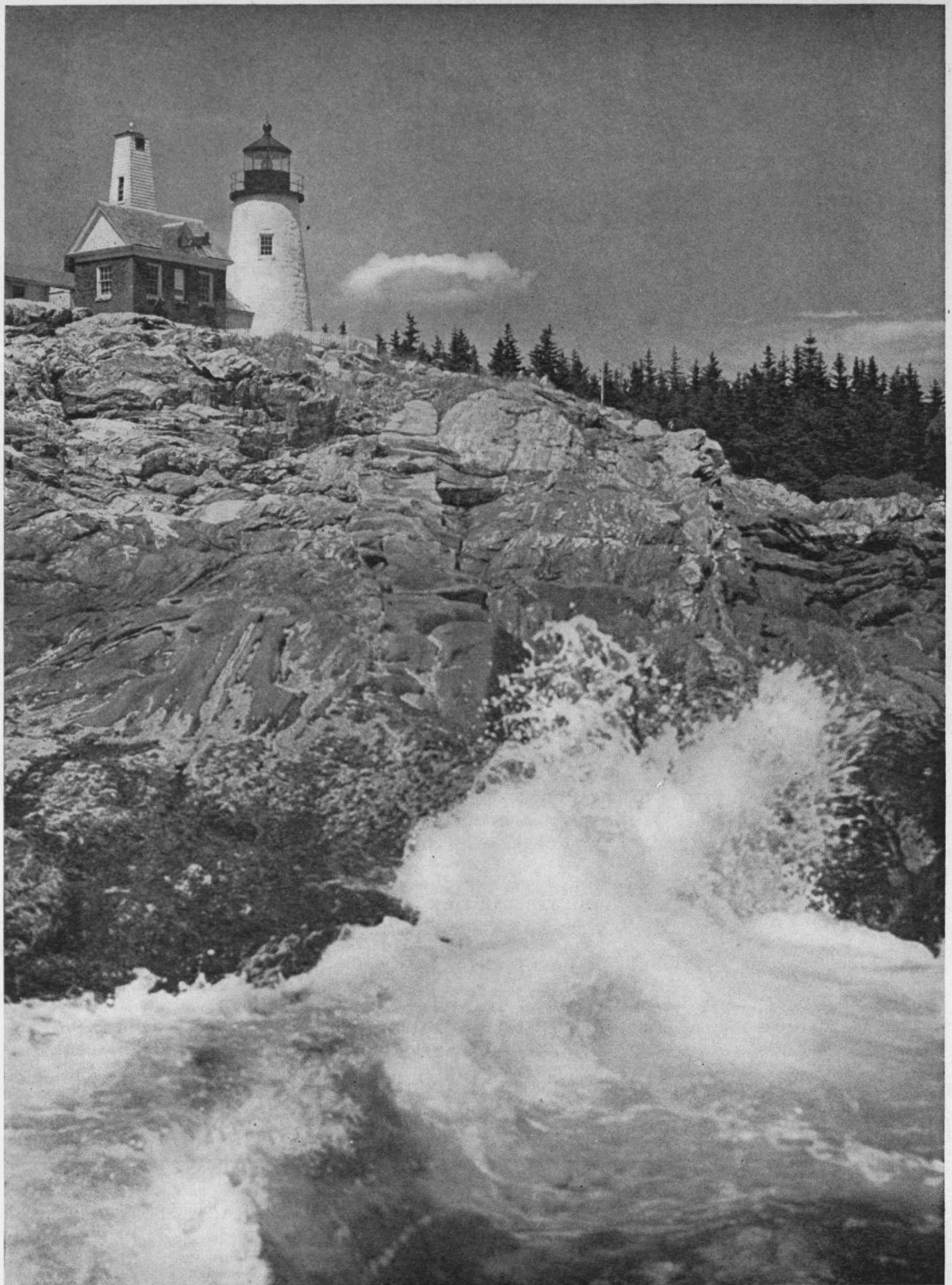
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# THE TECHNOLOGY REVIEW

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April, 1947



## The Trend of Affairs

### *From Astronomy to Television*

DURING the 1930's the late Bernhard Schmidt, optician at the Bergedorf Observatory, near Hamburg, Germany, invented a unique camera, and incidentally, one of the most important of recent additions to the astronomers' arsenal of tools. Knowing that a spherical mirror has but the one error of spherical aberration, although to a degree that renders it useless for most optical purposes, Schmidt placed in front of it a correcting plate, a thin, weak lens that cancelled out that aberration while adding virtually none of its own. The fact that the correcting plate had an aspherical surface, one that could not be ground on any machine then extant, was doubtless of small moment to him, for the hand figuring of lenses was his daily work. But, for a time, the practical difficulty of lens grinding quite effectively restrained commercial applications of this system, in spite of its great light-gathering power and razor-sharp definition. Schmidt optical systems have been built to the very large aperture ratio of  $f/0.6$ . If the correcting plate is ground in the same piece of glass as the mirror (a solution known as the solid Schmidt, and limited in general to small cameras) further improvements are possible and the almost incredible speed of  $f/0.3$  is attainable.

It is reported that Schmidt's first use of his new camera was to read the epitaphs on the gravestones of a nearby cemetery. He later took a picture of a landscape about two kilometers away, using only starlight for illumination but this was not so much of a feat as it sounds, since the exposure time was two hours. However, the manifold virtues of his camera, one of which is its wide field of view as compared with a parabolic reflector of equal aperture (about 25 degrees rather than one degree for an  $f/1$  system), soon led to widespread use of Schmidt cameras in astronomy, particularly as mapping instruments. Among the larger units is one with a correcting plate 26 inches in diameter at the Observatorio Astronomico Nacional in Mexico, for which the largest prism on

record was recently manufactured. A 48-inch Schmidt is at Palomar, and a 60-inch instrument is planned for one of Harvard's observatories.

The unmodified Schmidt does not project its image onto a flat field, as does the usual camera lens, but onto a spherical surface. Normally, this is a nuisance that taxes even the patience of an astronomer, but to the television research workers it is a simplification. The surface of the cathode ray tube, on which the television image is produced, is normally curved and can easily be made spherical. Furthermore, the television image is produced at considerable cost in equipment and cannot readily be made as large or as bright as is desirable. To make this image large enough to be seen comfortably by sizable groups, particularly by theater audiences, some form of projection apparatus is required. A projection system that makes the utmost use of the light coming from the face of the cathode ray tube is, of course, highly desirable. Compared to a conventional  $f/2$  lens, a Schmidt projecting system can put about six or seven times as much light on the viewing screen. Large systems of the Schmidt type, with lenses of observatory proportions, have been built for theater work, but at heavy cost for the optical components. Methods of molding the correcting lenses of plastic have been developed, however, and the system has been proposed for creating larger images in home television receivers. Experimental models of projection television receivers using such an optical system were built and described before World War II.

While the uses of the Schmidt camera will undoubtedly become more numerous if the production difficulties surrounding the aspherical correcting plate are overcome, applications already include television pick-up cameras where, with the latest television tubes and infrared telescopes used during the war for night observations, they can follow a football game right into the dusk. One of these latter devices has an aperture of  $f/0.9$  and a wide field of view.

The emergence of the Schmidt camera caused as-

tronomers to examine other possible systems of like properties, and some interesting variations have arisen. By and large, they tend to be more complicated than the Schmidt; all require a correcting plate, some involve two mirrors, and at least one requires that one or both of the mirrors depart from a true spherical surface. In turn, the newer optical systems permit a flat image field or a shorter tube length than the Schmidt, and are, in general, quite free of optical errors.

### Spokesman for Physicists

**R**ECENT changes which have been made in the constitution of the American Institute of Physics bring together in one organization the country's professional physicists in industrial and educational institutions. Formed in 1931 for the advancement of physics and the dissemination of information about physics, the American Institute of Physics has operated largely as a federation of its five founder societies, the American Physical Society, the Optical Society of America, the Acoustical Society of America, the Society of Rheology, and the American Association of Physics Teachers. The American Institute of Physics has also served the founder societies in the publication of their scientific journals and has itself published the *Journal of Applied Physics* and the *Review of Scientific Instruments*.

No change has been made in the organization, functions, and activities of the member societies who serve the specialized branches of nuclear physics, optics, acoustics, flow of materials, and education in the field of physics. Under the new plan, members of the five founder societies retain their membership in these societies but also automatically become members of the American Institute of Physics which is thereby able to act as spokesman for the nation's professional physicists and physics educators. Such unification comes at a particularly appropriate time because of the widespread public recognition of the part which physicists have played, and continue to play, in the advancement of today's living.

For those interested generally in the broad field of physics but who may not have the specialized interests to warrant membership in any of the more specialized societies, associate membership in the American Institute of Physics, with nominal dues, has been made available. It is believed that such membership will have a special appeal to many engineers, chemists, biologists, students, and others susceptible to an interest in physics.

Plans are in progress for the publication, by the American Institute of Physics, of a journal whose principal function will be reportorial rather than archival in character. The projected journal, which is to carry general news articles about physics and related sciences, will be made available to all members of the American Institute of Physics.

### One-Minute Photography

**C**USTOMARILY playing the quiet role of a sober, learned society devoted to a specialized branch of physics, the Optical Society of America made headlines on February 22 when Edwin H. Land, President of the Polaroid Corporation, presented a technical paper on a one-step photographic process at the Society's winter meeting in New York. He also demonstrated the possi-

bility of obtaining finished photographic prints, completely processed and essentially dry, a minute after the shutter had been snapped. If the Eastman Kodak Company in 1890 originated the slogan, "You push the button, we do the rest," the Polaroid Company in 1947 could provide the sequel, "You push the button and out comes the picture."

Practical importance of the system of photography devised by Mr. Land is that it accomplishes in a single step all the processing operations of ordinary monochrome photography in an elapsed time of 60 seconds, or less, with a process which is essentially dry. Photographs can be seen and enjoyed at once, and, if the result is not what was expected, a new exposure can be made on the spot. Technical pictures can be put to immediate use without the delay inherent to normal photographic processes by the more conventional wet-processing methods. Portrait and advertising photographers may detain models in their studios and may even ask them to hold their poses until the desired effect is obtained. In the field

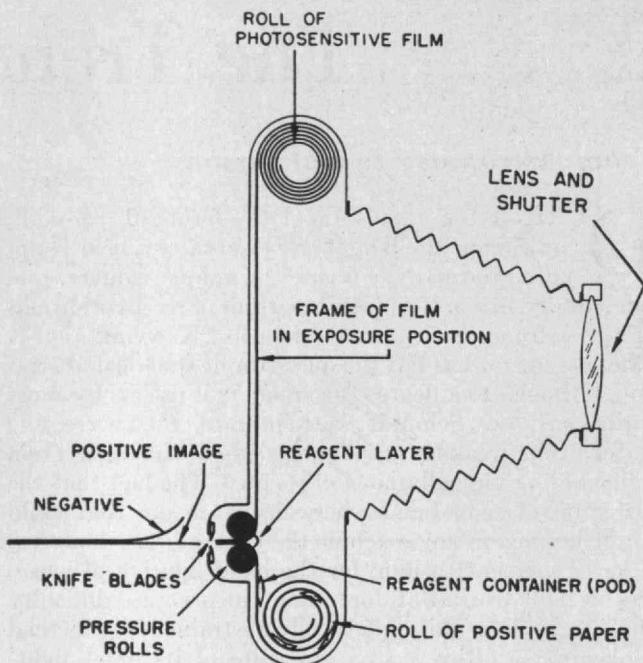


Diagram of camera for use in the one-minute photographic process indicates that production models, when available, may be similar to the ordinary folding camera except for the roll of chemically treated positive paper to which pods of processing reagent are affixed, and the pressure rolls and knife-edges through which the negative and positive image sheets are passed after exposure.

of amateur snapshots, no longer need Aunt Minnie appear in picnic scenes with her head neatly sliced off; the decapitated lady can be made whole on the succeeding exposure. The process should be ideally suited for use in those cases for which ample time is available for making camera adjustments but for which the opportunity to record certain scenes may come but once. Accordingly, the process may be expected to find considerable application in recording travel scenes.

Cameras for the new process can be manufactured in the same variety of sizes and shapes as conventional cameras for technical and amateur uses. They will contain no processing tanks or trays and need be appreciably no larger than present cameras for a given size of negative. But, for the present at least, the new photographic

process must be regarded as an interesting and important scientific disclosure of things to come. The next step, that of manufacturing the cameras on a large scale and of making the required photographic materials generally available, lies in the future.

Two premises were at the basis of all research carried out in the development of the new photographic process. It was stipulated that the cameras for the new one-step process were to be appreciably no different from those now used in making photographs, except that they were to be able to deliver finished prints dry, fixed, and ready for use. The photographic images were also to be produced by means of fast emulsions, using silver halide rather than other promising but very much less sensitive means of obtaining a positive print. Both of these objectives aim to achieve the utmost simplicity of operation on the part of the user. If, as has been said by Professor Arthur C. Hardy, '18, progress is measured by the extent to which operations are made simpler for the user at the expense of increasing the complexity of manufacturing operations, then the one-step photographic process certainly marks an important step in the progress of photography.

In brief, the process employs two types of photographic material which may, for convenience, be in the form of rolls. One of these is a sheet of photosensitive negative

are pulled apart to obtain a dry, positive print which is permanently fixed and requires no washing.

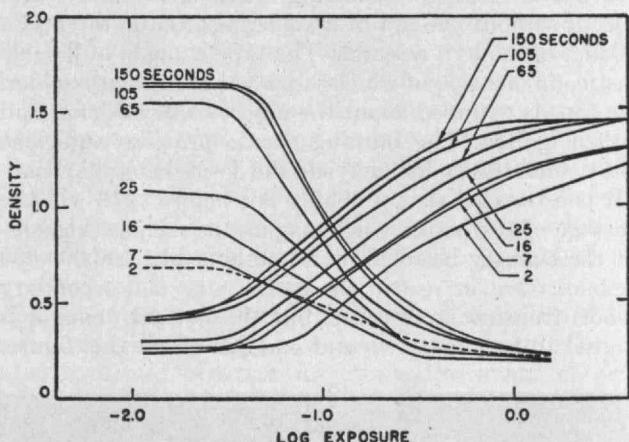
A technical description of several possible methods of obtaining the desired end result is given in the February, 1947, issue of the *Journal of the Optical Society of America*. Of the several possible methods of making finished photographic prints directly and promptly from the latent image in the negative, attention is directed to that process which appears most promising and which, therefore, has been most thoroughly studied.

As shown on page 330, the special camera has the usual lens, bellows, and film cartridge for the negative roll film which is inserted and exposed in the customary manner. An additional sheet or roll film for making the positive print may be inserted in the cartridge space usually reserved for the exposed film. The ends of both the photo-sensitive negative and the chemically treated positive materials are passed through a pair of pressure rollers. In loading, presumably one or both rolls will be aligned with a numbered index as is customary in the usual roll film cameras. Exposure is made in the usual manner, although the exposure is more critical than that required for ordinary monochrome negatives. After exposure, the negative and positive sheets are pulled through the rollers and cut or torn away from the camera. The sheets removed from the camera have their outer surfaces protected from actinic radiation to protect the negative from being fogged.

A reagent, in the form of the exact amount of viscous fluid needed to expose the negative and print, is fed between the two sheets just before they enter the pressure rolls. When negative and positive printing paper pass through the rolls, the pressure applied spreads the reagent as an extremely thin layer between the two sheets, temporarily binding them together as a sandwich. The thin layer of viscous reagent develops the exposed grains of the negative, and transfers the unexposed grains to the positive paper where a print is formed on its inner surface. After a processing time of about one minute, the two sheets are peeled apart, and are essentially dry. One of the sheets is the finished positive print.

For convenience in operation, the reagent is contained in small pods fastened at intervals to the sheets of either roll so that they are automatically carried into place as the two sheets feed through the rolls. As indicated in the illustration, the pods are attached to the roll of positive print material. The reagent pods are as wide as the photo-sensitive material but are only a fraction of its length. The pod is a water and oxygen opaque sheet, folded, sealed at the ends, filled with reagent, and bonded along the long edge. The edge-bond is so made that when the pod passes through the rolls, the hydraulic pressure of the liquid within bursts this edge and the small quantity of liquid is thus transported ahead of the rolls and between the two sheets. The quantity of reagent is such that there is negligible excess over that required for processing a single pair of images.

If the reagent were to have the viscosity of ordinary developing solutions, complicated devices would be required to spread it uniformly. As the reagent is made more viscous, the problem of spreading it becomes much simpler. After a small amount of water in the reagent has been imbibed in the adjacent layers, there is left on one of them a very thin film of material used to render the reagent viscous. In some of the processes which were



*Characteristic curves of the two classes of materials employed in the new photographic process. For the negative, the curves are approximately parallel, running diagonally from lower left to upper right. For the positive prints, the highlights (corresponding to the point at which the curves converge at the lower right) are not appreciably affected by processing time. The shadows become only slightly darker as processing time is extended beyond one minute, indicating that the time required for processing is not critical.*

material which is loaded in the camera and exposed in the customary manner. The other is a sheet of chemically treated paper (for producing the positive print) inserted in place of the take-up spool for holding the exposed film in the ordinary roll film camera. A processing reagent, having about the viscosity of vaseline, is associated with either of these photosensitive materials, preferably the chemically treated positive material. After exposure in the usual manner, the negative and positive photographic materials, together with a measured amount of the processing reagent, are passed through a pair of pressure rollers. The reagent is spread uniformly between the two materials to form a temporary sandwich and simultaneously develops the negative and positive images. After about a minute of such processing, the two sheets

studied in the research program, the positive image is formed within this thin layer.

For the entire processing operation to be completed within a minute, it is economical of time to have the negative and the print processed simultaneously. Such a procedure has the further advantage of assisting in obtaining the high resolving power required for producing sharp prints.

The process is characterized by the simultaneous development of positive and negative images in adjacent layers, the positive image being formed from the silver halide of the unexposed grains of the negative. The reagent dissolves the unexposed grains while it simultaneously develops the exposed grains and precipitates the solution of unexposed grains as a metallic silver positive in a layer adjacent to the negative. The positive image is thus formed from silver halide grains originally in the negative, and which, in customary photographic processes, are dissolved away and wasted in the fixing bath of sodium thiosulphite.

The quality of prints obtainable by the new process is comparable to that obtained from the usual monochrome photographic processes. Exposure is about as critical as it is for color film and the contact prints are, of course, limited to the size of the negative. But against these minor limitations is the very important advantage of being able to see the finished print while there is still time to make a new exposure. Certainly many new and interesting photographic possibilities are opened up when it becomes possible to have prints without delay.

Newspaper photographers, for example, can leave finished prints on their editors' desks upon their return from a photographic assignment. Travelers can process their pictures en route. The process holds much promise for aerial reconnaissance, especially in case of emergencies where time may be an important factor. Radiographs can be made rapidly so as to speed up clinical diagnosis or industrial tests and production. No mention has thus far

appeared in print regarding the extension of the one-step process to motion-picture photography, high-speed photography, photomicrography, or picture transmission, but all these fields, and many more, are likely to benefit from 60-second photography.

### Miscellany Briefs

**R**ADAR is among the most modern methods now being used in the search for possible oil reserves beneath the blue waters of the northwestern Bahamas. It is reported that radar targets 50 feet high are set up at strategic points in the areas of exploration. These structures enable the navigator of the equipment boat to pick up the targets on the screen of radar equipment and also permit geophysicists to plot oil sites with precision.

Among the new products that can be and are being made from petroleum and natural gas, Robert T. Russell, '22, recently listed synthetic soaps of superior quality, a type of resin that can be made into thin sheets and wrapped around highly perishable food products to keep them fresh during storage, cheaper but highly effective fungicides and insecticides, and a synthetic gasoline from natural gas that already appears to be economically competitive with gasoline made from crude oil.

A plastic tape for soldering wires and small metal objects without the aid of a soldering iron or torch is a product of modern research. The tape is made of flexible plastic, on one side of which is a layer of ordinary solder. The tape is wrapped about the object to be soldered and is then ignited. The burning plastic provides sufficient heat to melt the solder and yield the desired metallic bond.

It is estimated that probably not before 1948 will the shortage of textbooks which plagues the schools throughout the country be relieved. Something like 100,000,000 textbooks are in use in the elementary and secondary schools from coast to coast, but the normal demand is reputed to be about two and one-half times this figure.

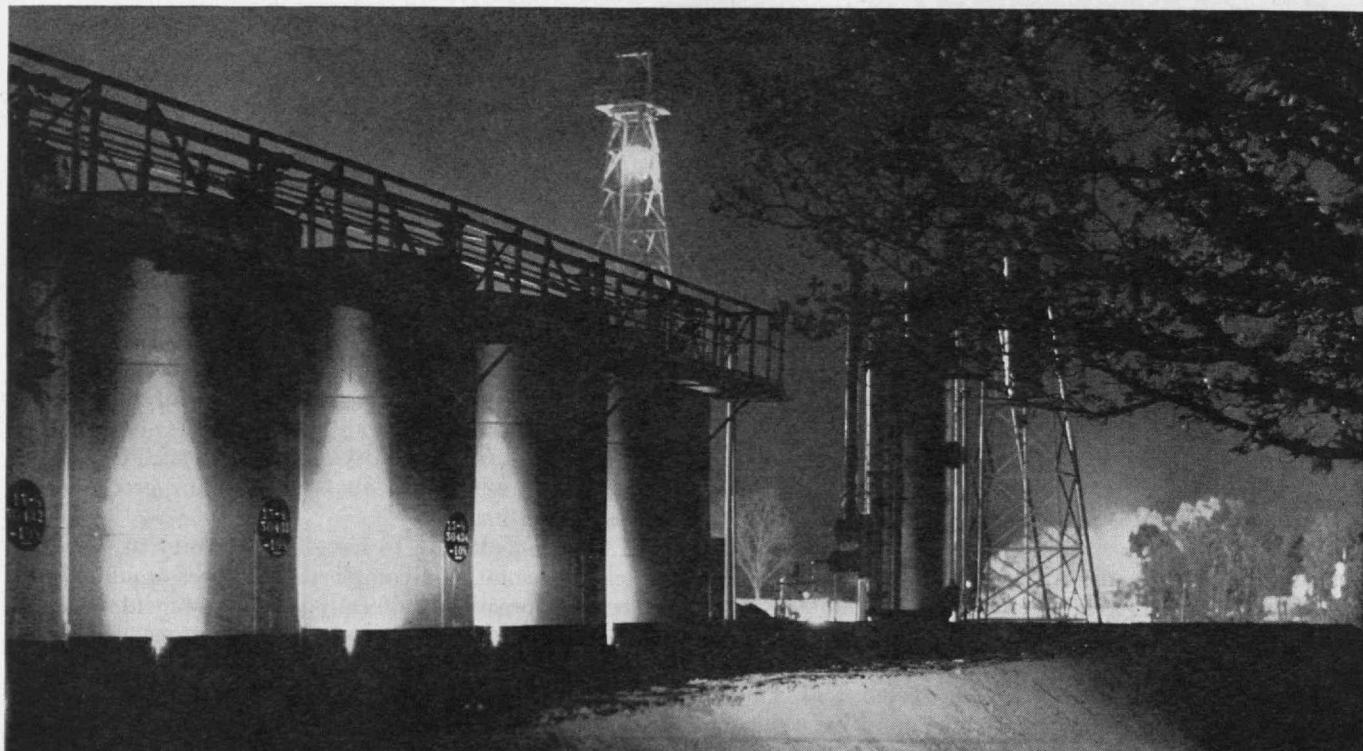


Photo by H. Armstrong Roberts

# Television—Retrospect and Prospect

*Many Useful By-products Have Resulted from Television Engineering.  
The Contributions which Television Can Make to Human  
Welfare Still Remain To Be Evaluated.*

BY VLADIMIR K. ZWORYKIN

SCIENCE and engineering are closely interlocked; yet the basic motivations of the scientist and the engineer differ. The primary aim of the scientist is to understand; that of the engineer, to create. Having brought the engineering development of television to a stage where it may play a major role in human affairs, it is natural for those responsible to ask themselves whether the expenditure of time, thought, effort, and material goods has been justified by the new creation. It is this question which I shall try to bear in mind as I trace, briefly, the salient points in the development of television and consider its prospective uses. Essentially, the benefits conferred by the television program fall into two groups: the useful by-products of television research, and the contributions of television itself to human welfare.

The beginnings of television — the electrical transmission of visual scenes — may be traced back to the city of Boston. Here, in 1875, shortly after Willoughby Smith's<sup>1</sup> discovery of the light sensitivity of selenium, G. R. Carey<sup>2</sup> conceived of setting up a grid of selenium cells and connecting them individually to a similarly arranged set of electric light sources, whose light output they would control. Thus, in principle, if a picture of the scene was projected by a lens on the bank of photoelectric cells, a distant observer might see the image crudely reproduced on the bank of light bulbs. Carey did not succeed in actually transmitting a picture since the cell currents were too weak to activate either the lamps themselves or suitable relays. However, his system lives on today in animated advertising cartoons and news strips. A feature which it has in common with all subsequent television systems is the division of the scene or image into individual picture elements, (namely, the photocells and lamps of Carey's system, or their equivalent counterpart in modern television systems) whose total number determines the detail with which the picture can be reproduced.\* On the assumption that the spacing of the picture elements in the horizontal direction is equal to that in the vertical direction, it is customary to describe the fineness of detail in a television picture, at the present time, by specifying the number of parallel lines of picture elements. This concept of picture lines achieved physical reality when it was suggested by Maurice LeBlanc<sup>3</sup> that the signals from the several picture elements should be transmitted in sequence to the receiver over a single

channel, rather than simultaneously over a number of channels equal to the number of picture elements. Paul Nipkow<sup>4</sup> realized such a system by projecting an image of the scene on a so-called scanning disk in front of a single photoelectric cell. The rotating scanning disk was provided with a series of offset apertures in such fashion that successive apertures swept out successive scanning lines on the image and photocell. The observer looked at a second disk synchronized with the first and placed in front of a light source whose brightness was controlled by the output of the photoelectric cell. If the disks spin fast enough and the photocell current is strong enough to modulate the light source adequately, then, owing to the persistence of vision, the subjective sensation produced is the same as though the observer views a continuous picture of the original scene.

## *An Idea Converted to Reality*

These, as well as later schemes, remained essentially inoperative as long as the electrical output of photoelectric cells was too weak to modulate the light sources in the receivers. It was only after the invention of the audion, by Lee deForest in 1907, that the amplification of small currents became a possibility so that the various schemes for the transmission and reception of pictures could be tested out in practice. More than that, vacuum tubes soon made possible the employment of radio waves as a television channel, so that the basic requirements for the presentation of television programs to a large, widely distributed audience were given. The subsequent development was rapid. Ingenious scanning mechanisms, employing high-speed rotating machinery, took their place both in the transmitter and the receiver. They were pushed to the limit in speed and dimensions in an effort to create pictures of sufficient detail to hold the interest of the viewer for prolonged periods. Much valuable experience was gained, but television systems using mechanical methods of scanning could not well provide sufficient detail to yield pictures that would compare with amateur home movies. What was required was a practically inertia-free means of selecting successive picture elements in the transmitter and of displacing a corresponding variable light spot over the viewing screen of the receiver. Beams of electrons, the lightest and most readily controlled particles in existence, filled the need. Since such beams can be deflected by varying electric or magnetic fields at frequencies exceeding the requirements of any television system, mechanical moving parts became altogether superfluous in a completely electronic system.

<sup>1</sup> Richard W. Hubbell, *4,000 Years of Television*, pp. 57, 62. (New York: G. P. Putnam's Sons.) Also, T. Thorne Baker, *Wireless Pictures and Television*, p. 21. (London: Constable and Company.)

<sup>2</sup> Hubbell, *op. cit.*, pp. 59-62; Baker, *op. cit.*, pp. 21, 169.

<sup>3</sup> Richard W. Hubbell, *op. cit.*, p. 63.

\* Such picture elements are analogous to the dots in a halftone reproduction.

<sup>4</sup> Richard W. Hubbell, *op. cit.*, p. 65 ff.



### 1880 PROSPECT

*Looking ahead to possible developments in the year 1952, an artist of 1880 visualized projection television applied to university education for women. Although the television apparatus of 1952 will differ considerably from the assembly of mechanical parts shown here, the artist has managed to predict quite accurately the technical possibilities which could be brought into play almost three-quarters of a century after this lithograph was made.*

*The Bettman Archive*

The electronic tube forming the image in the receiver, called a kinescope, is a modification of the cathode-ray tube, originally used as an oscilloscope to provide visual indications of electrical phenomena. At one end of the cathode-ray tube is an electron gun which forms a fine, sharply focussed beam of electrons. The electrons in this stream are projected through the tube and produce a small spot of light where they strike a fluorescent screen at the other end of the tube. The beam is deflected over the fluorescent screen (which is usually several inches in diameter) by a magnetic field in such a way that the spot traces out a sequence of closely spaced, narrow, luminous lines on the fluorescent screen. That is, the spot travels over the fluorescent screen in a left-to-right, up-to-down scanning process similar to that which the eye makes when reading a page of print. The scanning process is repeated rapidly so that (in the absence of a television signal from the transmitter) the screen is uniformly illuminated.

In order to form a visual image on the screen of the kinescope the luminous region produced by the moving spot must be properly altered. At any instant of time, the brightness of the scanning lines is determined by the intensity of the electron beam, which in turn is controlled by a signal from the transmitter. To go one step further, the transmitted signal varies in accordance with the image being televised, in another scanning process at the transmitting station with which the receiver scanning is kept in step. The overall effect is that, at any instant of time, the brightness of any part of the image recreated at the receiver is proportional to the brightness of the corresponding part of the original scene. Since the entire screen is scanned 30 times each second, the image appears continuous to the eye.

It may be noted that the cathode-ray tubes existing at the time of origin of the kinescope were far from fulfilling

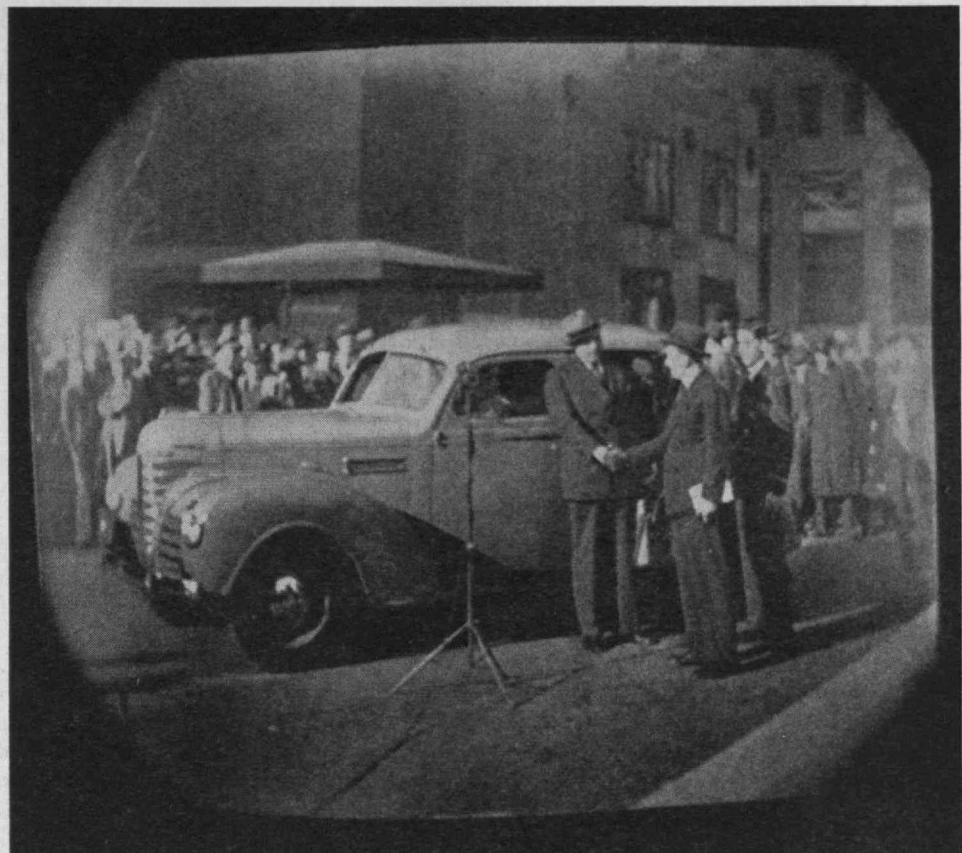
the demands of television. The research which went into the development of electron guns to produce fluorescent spots of sufficiently small size and to provide adequate intensity made material contribution to the evolution of the science of electron optics which, since then, has culminated in the electron microscope.

The first electronic tube devised to serve as a true camera tube, i.e., to produce an electrical signal in accordance with the picture to be transmitted, was the iconoscope. In this tube, an optical image of the scene to be transmitted is projected onto a fine mosaic of photo-sensitized silver globules deposited on a mica plate with platinum backing. Each sensitized globule acts as an exceedingly small but very sensitive photoelectric cell, which accumulates an electric charge according to the amount of light reaching it. In a scanning process similar to that previously described, a beam of electrons sweeps over the mosaic, and liberates the electric charge stored by the individual globules. After the electron beam has removed the charge from any globule, this sensitive spot is removed from the scanning part of the system, but accumulates another charge in accordance with the amount of light striking it. This charge builds up until the globule is again discharged by the scanning beam, and hence each element stores up light-actuated, electrical energy between those intervals at which it is visited by the electron beam. It is to be noted that the iconoscope is superior to the mechanical pickup not only in the absence of moving mechanical parts, but also in being enormously more sensitive because of the storage of energy between scanning of individual globules of the mosaic. A tube employing the storage principle, like the iconoscope, may be several hundred thousand times more sensitive than equivalent tubes which do not use the storage principle.

## 1947 RETROSPECT

*Looking back to earlier television accomplishments, this preview of a 1939 automobile, televised at Rockefeller Center on November 10, 1938, gives a clear indication of the technical quality of television images and an insight to experimental programs of almost a decade ago. The image shown here was photographed from the screen of the kinescope or viewing tube which yielded black and white pictures usually about five by seven inches in size.*

*Acme Newspictures, Inc.*



The iconoscope was greatly superior to any earlier pickup device and still plays a leading role in television transmission. Nevertheless, it had certain defects which further research undertook to remove. One of these defects consists in a relatively low efficiency of the storage process: The other takes the form of shading, that is, dark patches were present in the picture and these had to be eliminated by the insertion of special shading signals which in turn reduced the sensitivity considerably below that expected for an ideal storage system.

Both of these drawbacks were overcome in the orthiconoscope, or the orthicon, for short. This highly sensitive pickup tube reproduces light variations faithfully over a wide range of intensities, but may become temporarily unstable if exposed to extraordinarily brilliant light.

Long before the realization of the orthicon, other efforts to increase the sensitivity and electrical output of the television camera tube had been undertaken and bore fruit in a new camera or pickup tube known as the image tube iconoscope. The electronic principle used in the image tube, developed in an effort to improve the signal output of television pickup tubes, has subsequently found a number of useful applications in other fields. During World War II the image tube became the means of observing enemy action by infrared radiation without betraying the observer. The effectiveness of the "snooper-scope" and "sniperscope" is well documented.

Another effort to achieve an enhancement of picture signals took the form of the secondary emission electron multiplier. In it a small electron current (of primary electrons) incident on a target electrode yields a much larger current (of secondary electrons). Each primary electron can release or eject as many as 20 secondary electrons, much as a cue ball scatters many billiard balls on the break. This process may be repeated until the original

current is multiplied by a factor of several millions, without introducing appreciable additional fluctuations in the current. Thus the electron multiplier serves to raise the signal level at the output of the pickup tube to such a degree that the noise introduced by the subsequent conventional amplifier becomes relatively negligible.

Again, the electron multiplier has found many uses far removed from the television field. If the first target electrode is replaced by a photoelectrically sensitive surface, the result is a phototube whose sensitivity enormously exceeds that of any earlier type of phototube. As such it has been applied for the measurement of star size, utilizing the diffraction pattern which moves across the earth as the star is eclipsed by the moon; for the determination of x-ray intensities, responding to the light emitted by a fluorescent screen facing the multiplier cathode; for the translation of weak light signals into sounds for the guidance of the blind; and to numerous other scientific and industrial purposes. In wartime, its enormous amplification and excellent dynamic response have been employed for creating uniformly distributed interference with the enemy's radio communications.

### **Improvements in Receivers**

The advantages of the multiplier and the image tube have recently been combined with the orthicon principle in the image orthicon. This tube is stable at all light levels, exceeds photographic film in sensitivity by a considerable factor, and makes possible the transmission of recognizable scenes even when the illumination is nothing but bright moonlight. The limitations that remain are of a fundamental physical character, but also, although to a lesser extent, imposed by the great complexity of its construction.

The improvements in the pickup tubes have been paralleled by improvements in the receiver. Better designs of the electron guns and deflection systems for kinescopes have led to smaller and more intense electron spots, corresponding to increased demands on picture brightness and detail; new synthetic phosphors — the chemicals deposited on the screen of the kinescope and which produce fluorescence by impinging electrons — have yielded brighter images of a more pleasing shade or color; and optical systems of extraordinary light-gathering power, employed in conjunction with kinescopes operated at very high voltages, have made it possible for large projected television pictures to approach the brightness demanded in first-class motion picture theatres. The technique of coating the phosphor layer with a thin electron-transparent, light-reflecting film of metal, contributed to the enhancement of both the contrast and the brightness of the image. Finally, special methods of casting the aspheric plastic lenses required for projection type receivers have put this development economically within reach of the home.

It goes without saying that pioneer work in many other fields, such as wide-band circuit technique, antenna design, and wave propagation at ultrahigh radio frequencies, had to keep pace with pickup tube and receiver development. In addition to this, problems of program presentation and spot pickup began to be investigated at an early stage, so that, at the present time, a television service is available which provides black and white pictures of quality comparable to home movies within a radius up to 40 or 50 miles of the transmitting station. Such stations exist or are under construction in most of the major cities of the United States. A few are even now connected into networks by coaxial cables and ultrahigh frequency relay links. In heavily populated regions, such as the New York area, there are a considerable number of stations, partly in operation, partly projected, from which a variety of concurrent programs may be selected. About as many programs originate in the field, transmitting historic occasion, sports events, and the like, as in the studio, where stage presentations, motion pictures, periodic news, and educational features are provided.

### *Color Television*

It has already been noted that the pictures which the television system provides are black and white or, at any rate, monochrome. This is unquestionably a limitation. Color aids both our recognition and our appreciation of a visual scene. Hence it is not surprising that, at a relatively early date, efforts were made to transmit and receive pictures in natural colors. At the present time, these efforts have led to two systems. The first employs sets of mechanically rotating red, green, and blue filters in front of the pickup tube and the viewing tube, respectively. Thus a sequence of red, green, and blue partial pictures is presented in rapid succession to the eye, which, owing to the persistence of vision, fuses them into a single natural color picture. This system is known as a sequential color system. In the second system the three red, green, and blue partial pictures are transmitted over three separate channels. The three separate pictures formed in the receiver are then superimposed by a stationary optical system, so that a single natural color picture is presented to the eye. This system is a simultaneous color system.

The sequential and simultaneous systems have two properties in common: They require a wider frequency channel for their transmission than black and white, and, at the present time, neither has been developed to the point where it meets the standards set for monochrome television.

### *Is Television Worth While?*

We have seen that television research has accomplished two things: It has made possible a technically satisfactory television service and, in addition, it has contributed to numerous other valuable scientific and technical developments. One final question that requires an answer is this: Is a technically perfect television service likely to be worth while? The answer follows most readily from a consideration of the impact which television may have on our lives when its services become widely available and the primary problems which we face today.

Possibly the crucial problem of the day is the realization of a world in which the peoples will co-operate for their common welfare. The focus of the efforts in this direction is the United Nations. At the first meetings of the United Nations in New York, television played a two-fold role: Receivers were set up in the lobbies to make it possible for those who were unable to find a place in the main hall to watch the proceedings; in addition, several of the meetings were rebroadcast from New York to owners of television receivers distributed over a wide area. Both served to increase the contacts between delegates and the public. With the wider dissemination of television receivers such broadcasts should become a potent force in creating understanding for the peoples represented in the United Nations and counteracting the influence of prejudiced and inaccurate reporting.

Again, with the opening of the new Congress, television cameras were on hand in Washington to transmit the sessions to the nation. In our present democracy the lines of communication between the common citizen and his representatives have become long and tenuous. Special interest groups can readily exert a disproportionate amount of pressure on the member of Congress who remains out of touch with the bulk of his constituency. By showing the national legislation at work television may help to redress this situation, making democracy effective on a larger scale than heretofore.

There can be no question that the television broadcasts just considered must be regarded as educational. In addition, however, there is a wide scope for programs that are educational in a more restricted sense. The experience of the armed forces during World War II has amply demonstrated the extraordinary effectiveness of visual methods. Imagine a skilled musician showing the fingering of his instrument, an artist letting his work grow under his hands as he explains the principles of design, a commentator indicating the happenings of the moment on a descriptive map, the scientist demonstrating physical principles and chemical reactions by laboratory experiments, a skilled surgeon performing a delicate operation, the mathematician deriving his deductions with his customary symbols on the indispensable blackboard — all right in front of your eyes! Would this not be a ready way to increase your knowledge, broaden your interests, and thus enrich your life?

Yet it must not be assumed that the sole function of television is to instruct. *(Concluded on page 354)*



Official Photograph, United States Navy

An important Seabee activity was the construction of piers and wharves, such as this pier on Los Negros in the Admiralty group.

WHEN the Seventh Fleet, with its Seabees, became a unit of the Allied Forces operating under General Douglas MacArthur, as supreme commander in the Southwest Pacific area, the fortunes of the democracies "east of Suez" were at a low ebb. Pessimists believed the invasion, and possibly the seizure, of both India and Australia to be inevitable. Better informed observers were saying that the Japanese could be halted and held to the gains they had already made until victory over Germany permitted the transfer of men and equipment to the Pacific in such strength that the offensive could be taken with assurance. Those who insisted that the offensive could be taken effectively, with the forces that could be made available to the Pacific commanders prior to the defeat of Germany, were considered optimists.

But the optimists proved to be right! For, when Germany surrendered, Allied Forces had won control of the Pacific and adjacent seas, except waters contiguous to the islands comprising Japan, these islands themselves, and isolated enemy strongholds in which impotent garrisons were starving. To be specific, Allied Forces had driven the Japanese from the Aleutians; had control of the New Hebrides, Solomons, Bismarck, and Admiralty Islands and New Guinea; had occupied Saipan and recaptured Guam; had all but completed the reconquest of the Philippines; and over and above all this, had seized Iwo Jima and landed on Okinawa — the very doorsteps of the Japanese homeland. Therefore, when Germany surrendered, the Allied Forces in the Pacific were not merely preparing to take the offensive; they were getting ready to strike the knockout blow which brought about the unconditional surrender of Japan three months after V-E Day! An important contribution

# Stepping Stones to Victory

*Herculean Efforts in Engineering Construction Support Successes Won by Modern Fighting Forces*

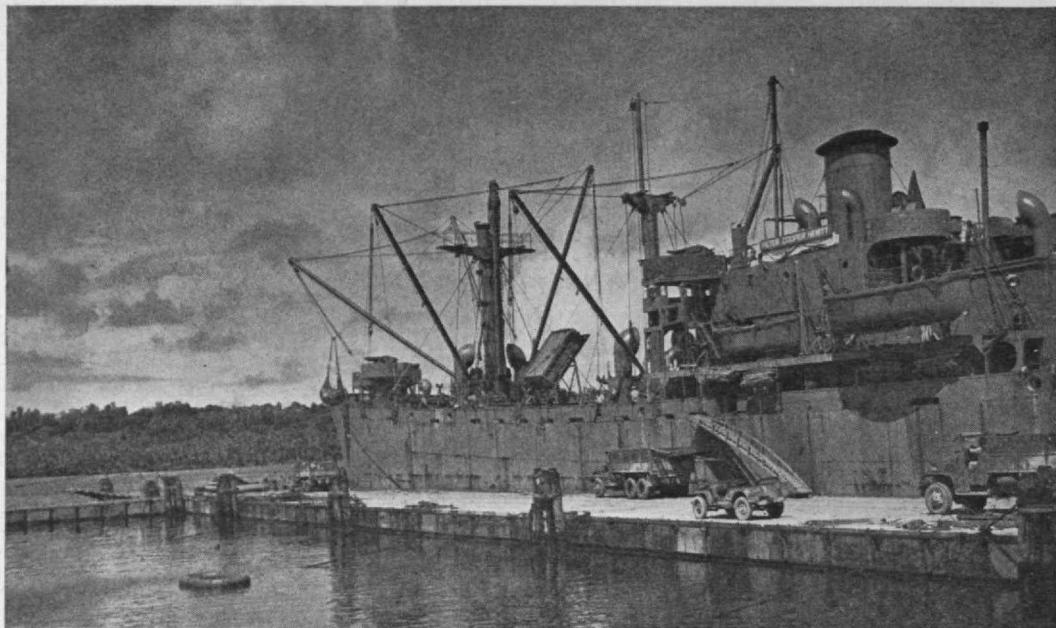
BY W. MACK ANGAS

to the success of this great campaign was made by the Seabees, the efficient and effective Construction Battalions of the United States Navy.

The primary job of the Seabees in the Pacific was the construction and maintenance of the advance naval bases without which the Pacific fleets could not have operated effectively, if they could have operated at all, in areas as far from permanent Allied bases as those in which victory over Japan was won. The construction of these advance bases was one of the outstanding achievements of the engineering profession during World War II. A brief review of the methods used by the Construction Battalions of the Seventh Fleet in building advance bases in the Southwest Pacific is justified by the fact that the subject may now be discussed without danger of violating military security and because the participation of the Seventh Fleet Seabees in the Southwest Pacific campaign offers an important demonstration of the effectiveness with which Army and Navy co-operation may be achieved under the existing system of direction by independent War and Navy Departments. The writer's familiarity with the Southwest Pacific area led him to select the work of the Seventh Fleet Seabees for description, although it was no more important, extensive, or spectacular than the work done by the Seabees of other fleets in other areas, and possibly may be less so.

The Seventh Fleet operated in the so-called Southwest Pacific area which, although its boundaries were modified from time to time, comprised essentially Australia, New Guinea, and nearby islands to the northeastward, the Celebes, Moluccas, Philippines, British and Dutch East Indies, and the waters surrounding and separating them. A large part of the Southwest Pacific, as thus defined, lies beyond the geographical boundaries of the Pacific Ocean, and the entire area is at a great distance from the United States and even Hawaii. In fact, the center of the area is as far from Honolulu as Tokyo is from San Francisco.

In this large and distant area, General Douglas MacArthur, as area or supreme commander, headed a staff which planned, co-ordinated, and directed the activities of Allied Land Forces, Air Forces, and Naval Forces, each of which included Australian and, in some cases, British and Dutch units. The Land Forces and Air Forces were commanded by generals and the Naval Forces by an admiral. Each commander was assisted by a staff and each command was of such size as to require subdivision into units which were headed, in the



Pontoon wharf at Los Negros serves to unload the S.S. Peter Cooper Hewitt at the height of hostilities in the Pacific.

Official Photograph,  
United States Navy

case of the Land and Air Forces, by general officers, and in the case of the Naval Forces, by officers of flag rank. The commander of the Allied Naval Forces was also the commander of its dominant component, the Seventh Fleet of the United States Navy. This fleet, as finally organized, comprised the Seventh Amphibious Force, submarines, cruisers, and aircraft of the Seventh Fleet, and a Service Force.

The Construction Battalions, the Seabees, were part of the Service Force, the commander of which was responsible for the logistic support of the fleet including the construction and maintenance of its bases. The Seventh Fleet possessed neither battleships nor aircraft carriers, but ships of these types from the South and Central Pacific Fleets operated with it as occasion demanded.

### *Southwest Pacific Objective*

The basic mission of the Allied Forces of the Southwest Pacific was to halt the Japanese advance that threatened Australia and, if possible, to recapture the Philippines and the East Indies. It was decided that this could best be accomplished by an offensive along the north coast of New Guinea, culminating at the earliest possible date in the recapture of the Philippines. By the recapture of the Philippines, Japan would be effectively cut off from Java, Sumatra, and other highly productive islands of the East Indies, the seizure of which could therefore be postponed for subsequent mopping up operations. An offensive along the north coast of New Guinea could furthermore be co-ordinated readily and effectively with a series of thrusts toward the Japanese homeland by the Central Pacific Forces and would protect their southern flank while so engaged.

It was evident that the campaign would entail the construction of a number of bases at which ships, men, and equipment might assemble for offensive operations and from which they might subsequently be supported. The entire Southwest Pacific area was much too distant to permit fleets or armies operating within its boundaries to be effectively supported from existing ports and bases of the United States. Furthermore, the Southwest Pacific

area itself was of such size that the well-developed Australian ports of Melbourne, Sydney, Brisbane, Adelaide, and Perth, and the smaller ports of Townsville and Cairns could be used effectively as bases for only the opening operations of the campaign. Before Japan surrendered, the Seventh Fleet Seabees had participated in the construction of no less than 30 bases in Australia, New Guinea, and nearby islands, the Admiralties, Celebes, and Philippines. These bases ranged in size from mere section bases, which provided little more than headquarters for the senior naval officer ashore in a forward area, to huge fleet bases which were capable of supporting a major task force. A base of the latter type, built at Manus in the Admiralty Islands, was characterized by the amazed British as "bigger than Scapa Flow," and an even larger one was nearing completion at Leyte Gulf in the Philippines when Japan surrendered. Each of these fleet bases was manned by a force of more than 50,000 men and officers and each possessed the industrial, hospital, storage, and miscellaneous facilities of cities of several times that population. In addition, the fleet bases provided means for dry-docking and repairing vessels of all types, not excluding the largest ships afloat. The *Missouri*, or for that matter, the *Queen Elizabeth*, could have been dry-docked in the largest of the sectional floating docks at Manus or Leyte Gulf.

The expeditious provision of these bases naturally required that their actual construction be preceded by effective planning. "Planning" is here used in the broad sense which covers a much wider field than the mere preparation of drawings and the writing of specifications. The planning of the Seventh Fleet bases was initiated in neither the Construction Forces nor the Service Force but by the commander of the fleet and his staff, for they alone knew enough of the over-all plan of campaign to determine the locations at which bases would be required and the nature and extent of the facilities needed to support the operations which would be launched from, and supported by, each base. It was the function of the Planning Division of the Seventh Fleet staff, and more particularly its naval base section, to analyze the functions of contemplated bases, to prepare preliminary specifications for their construction, to deal with general

headquarters in co-ordinating the construction program of the Seventh Fleet with that of other Allied Forces of the Southwest Pacific command and to assist general headquarters in co-ordinating the construction programs of the Southwest, South, and Central Pacific commands. Admiral Kinkaid, the commander of the Seventh Fleet, fortunately had on his staff as Planning Officer, Captain David S. Crawford, U.S.N., who ably directed this important work, assisted by Captain John E. Dingwell, U.S.N., head of the Naval Base Section of the Planning Division. The Naval Base Section also included Captain Hunt V. Martin of the Civil Engineer Corps and other Civil Engineer Corps officers whose long experience in construction work and intimate knowledge of its problems made them invaluable members of the Seventh Fleet staff. Preliminary specifications originating in the Naval Base Section of the Seventh Fleet staff would later be developed by the Planning Section of the Construction Forces into drawings and specifications which, after approval by the commander of the Service Force, and Admiral Kinkaid, would be issued to the construction organization assigned the task of building a base.

### *Conference*

During the early stages of developing plans for an important operation, Admiral Kinkaid would usually give information to the commander of the Service Force as to contemplated demands on the various divisions of his organization. Members of the Seventh Fleet staff would also be authorized to discuss matters of mutual interests informally and confidentially with their opposite numbers on the Service Force staff. It was in this way that the commander of the Construction Forces and his principal assistants generally learned of the important tasks facing the Seabees. Although the resulting conferences frequently became heated, they had the merit of revealing at least some of the weaknesses of contemplated plans, and the conferees invariably parted friends in spite of the frank opinions they might have expressed as to each other's ability, or inability, to evaluate situations and forecast probable developments. An attempt to reconstruct one such conference will show what is meant.

The initial strike at Manus had been made in late February, 1944, and it was in early March that Captain Dingwell of the Seventh Fleet staff asked for an appointment with executives of the Construction Forces to discuss coming operations. The hours before Dingwell's arrival were spent in a final review of plans and specifications for the construction of a base of some importance at Madang, a Japanese stronghold which the Southwest Pacific Forces were scheduled to attack and seize in late June. Much time and effort had gone into the Madang plans for the place had one of the few good harbors on the north coast of New Guinea and would be most useful to the Seventh Fleet during the Southwest Pacific campaign against Wewak, Aitape, Hollandia and other enemy strongholds to the westward while the Fleet Base to be constructed at Manus was placed at the disposal of Central Pacific Forces operating farther to the north.

"We have the Madang plans all ready for approval," Captain Dingwell was told when he arrived.

"Congratulations," replied Dingwell, "and now," he added with a wry smile, "you can lock 'em up in the vault. The Madang show's off!"

There was a moment's silence. — Off! The Madang show off! All that work! All that wrangling with the Army and Air Forces for the good sites! General headquarters had even tentatively agreed that the Navy could occupy the village and the best wharf! And now the whole thing was called off!

"I needn't say this is 'top secret,'" went on Dingwell by way of explanation, "but we're to attack Hollandia in late April instead of Madang in June. We have information that the Japanese are pulling out of Madang and trying to concentrate at Wewak. The attack on Manus knocked them off balance and we're going to keep them that way by hitting Hollandia before they can reorganize. We're to take Aitape and Wake Island at the same time as Hollandia. Madang and Wewak are to be by-passed."

"Our necks will be out a long way! How far west of our Finschhafen base is Hollandia? How much of a base do we build there? Where do we get the men and materials?" The questioner was Commander Herd of the

*The ship repair unit at Manus, where damaged ships were repaired for return to action, acquired many of the characteristics of a busy navy yard.*

*Official Photograph,  
United States Navy*





The U.S.S. Mississippi in a floating dry dock for repairs at Guiuan anchorage at Samar Island. The dock was intended for cruisers, but by pumping 700,000 gallons of fuel oil out of its tanks, the giant ship was safely lodged in the keel blocks. It was the first battleship to be docked in the Philippine area.

*Official Photograph,  
United States Navy*

Construction Forces, who didn't like staff duty and wanted to take charge of a Seabee regiment in a forward area — an ambition he realized more than once before Japan surrendered.

"Hollandia's a little over 500 miles from Finsch," replied Dingwell. "It's a trifle closer to Manus, but Manus won't be ready to support a new operation next month. Anyway, we're building Manus for the Central and South Pacific Fleets in accordance with their plans and with Seabees and materials they furnished, so we'll have to launch the Hollandia show from Finschhafen and Milne Bay. We'll use men, materials, and equipment you had earmarked for Madang. The Hollandia base will be about the size of the one at Milne Bay, in fact a bit smaller, for there will be no advance base construction depot, no pontoon assembly depot and no spare parts depot. But Shanley has our first stab at a list of units. Read it to us, Mike."

Commander E. M. Shanley, who was then on the Seventh Fleet staff and had accompanied Dingwell to the conference, produced his list and began reading it with explanatory interpolations. "The ship repair unit is to be an E-3, equivalent to a destroyer tender. There'll be a repair wharf 500 feet long, 14 shop buildings 40 feet by 100 feet, and barracks and a mess hall for 800-1,000 men and perhaps 30 officers. The storage unit is a D-2 augmented to provide 80 storehouses 40 feet by 100 feet and about 20,000 cubic feet of cold storage. It's to have one wharf 40 feet by 500 feet."

Commander Wright, then Planning Officer and later Executive Officer of the Construction Forces, had been looking at a chart of Hollandia Harbor and interrupted at this point. "That'll have to be a marginal wharf, Mike, there's no room for a pier, and we'll not be able to have more than one Liberty ship alongside at a time. We can't use all those warehouses effectively with only one Liberty berth. Better let us put in two."

"We can't get the material for a second wharf. They'll have to lighter a lot of cargo at first and we'll authorize a second wharf as soon as lumber is available. Perhaps the battalions can cut piles and timber locally the way they did at Milne Bay," Shanley explained.

"Perhaps, but I hope we can get 'stateside' creosoted piles. The borers will eat off untreated piles in less than six months," replied Wright.

"We'll be on our way to the Philippines before that," Shanley countered.

"Maybe some of us will," said Wright, "but there'll be Seabees left behind in New Guinea to 'roll up the rear' and ship it forward, the way we're doing in Australia, and the Seabees will need those piers. But go ahead, Mike, any more storage and supply facilities? What about the hospital?"

Shanley continued, "There's to be a tank farm — eleven 10,000-barrel tanks, probably at Tanamerah Bay, 30 miles west of Hollandia. The hospital will have 500 beds to start with and will later be expanded to 1,100. We've got to have buildings for the operating rooms and 200 beds ready by the middle of September to take care of wounded from an offensive."

"What else?" queried Wright.

"Oh, the usual aggregation of small units. A fleet post office, small boat repair unit, harbor entrance control, and so on. Here's a bigger one, though. We need accommodations for an advance echelon of Admiral Kinkaid's staff," Shanley added.

"How big is it to be? Where is it to go?" asked Wright.

"Well," began Shanley, with some hesitation, "they're talking about accommodations for about 800 officers and men alongside General MacArthur's advance headquarters. Members of his staff think they will locate on the hills overlooking Lake Sentani. That will be handy to the air strips, you see."

"We'll plan for 800," remarked Wright, dryly, "but you'd better get a site big enough to hold the entire staff, that is, legal, personnel, medical, supply, and communication officers, and radio operators, yeomen, cooks, bakers, barbers — all 2,000 of them. And when we're talking about personnel, what about the receiving barracks?"

"We'd like you to use a tent camp for that," replied Dingwell, "but there won't be space so we're authorizing 20 barracks holding 250 men each — that's 5,000 men — and two mess halls and

(Continued on page 366)

# Human Relations in Industrial Civilization

*Subject to the Forces of Isolation, Opposition, and Special Interests the Individual Finds It Difficult to Become a Significant Human Being*

BY PAUL MEADOWS

IT is fashionable in anthropological quarters to describe human relations in an industrial civilization by comparing them with those of preindustrial peoples. Thus, village life in Guatemala may be compared with the city life of industrial "Middletown" in some such terms as the following. Guatemalan villagers are fairly immobile, family-centered, with developed and transmitted rituals for nearly every daily or unusual occasion. Their pattern of living is smooth, personal, simple, concrete, and homogeneous. The motives of their lives respond to the sanctions of the sacred and the customary, while piety and the secular concerns inextricably intertwine in their daily living.

In glaring contrast is the life of Middletown Americans. Middletown ways are secularized, mobile, heterogeneous, conventional, and dominated by pecuniary valuations and advantages. Personal life hardly centers around the family, but rather is qualified and conditioned by a network of formal institutions. The sacred is weak and ineffectual, sometimes even nonexistent, and the comfortable routines of religious ritual are things apart from daily interests. The culture, although resting upon the natural environment, is not of it. The continuity of existence with the historic past and the unquestioning dependability of a personalized culture belong to other and happier days. Opinion, frequently dogmatic, is charged with differences and hostilities, strangeness and hate; it is too seldom just and reserved.

Almost two generations ago a great religious leader sensed this mood and temper of human relations in industrial society and wrote about it in his justly famous *Rerum novarum*. Said Pope Leo XIII: "The elements of a conflict are unmistakable. We perceive them in the growth of industry and the marvelous discoveries of science; in the changed relations of employers and workingmen; in the enormous fortunes of individuals and the poverty of the masses; in the increased self-reliance and the closer mutual combination of the labor population; and, finally, in the general moral deterioration." Leo XIII was by no means the first to feel the leaderless drift of the twin forces of isolation and opposition within industrialism. David Ricardo had spoken of the conflicts of landlord and tenant, of agriculture and manufacturing. Karl Marx had systematized the oppositions in his terrific ideological onslaughts. The utopian socialists of the Nineteenth Century, the Owens and Rauschenbusches, as well as the humanitarians, had been sorely perplexed by them. Today, whatever else industrial culture may contain by way of promise of peace and human fulfillment, it rests uneasily upon mobile foundations of isolated and opposed interests. Industrialism has both atomized and organized human relations, and

this contradiction makes it tragically mercurial, volatile, and unmanageable.

## *Conflicts of Ownership*

The oppositions show most markedly in the area of industrial operations. Here the stakes are high; they include control over men and machines, the direction of the amount and flow of income, compensatory leisure and differential sharing in the goods of life, the authority over resources, and the right to determine policy. Common interests are few if for no other reason than that human relationships to and in the system of massed mechanization are not uniform. As a matter of fact, so great has become the differential sharing in social life that the human being in industrialism is pushed first one way and then another on a gridiron of claims and counter-claims. The net consequence is shifting conflicts which weaken loyalties, confuse issues, exploit community ties,



*Photo by Nathaniel Field from Evening Galloway*

*The ways of industrialized people are mobile, heterogeneous, conventional. Industrial culture rests uneasily upon the mobile foundations of isolated and opposed interests. The human being is pushed first one way and then another on the gridiron of claims and counterclaims.*

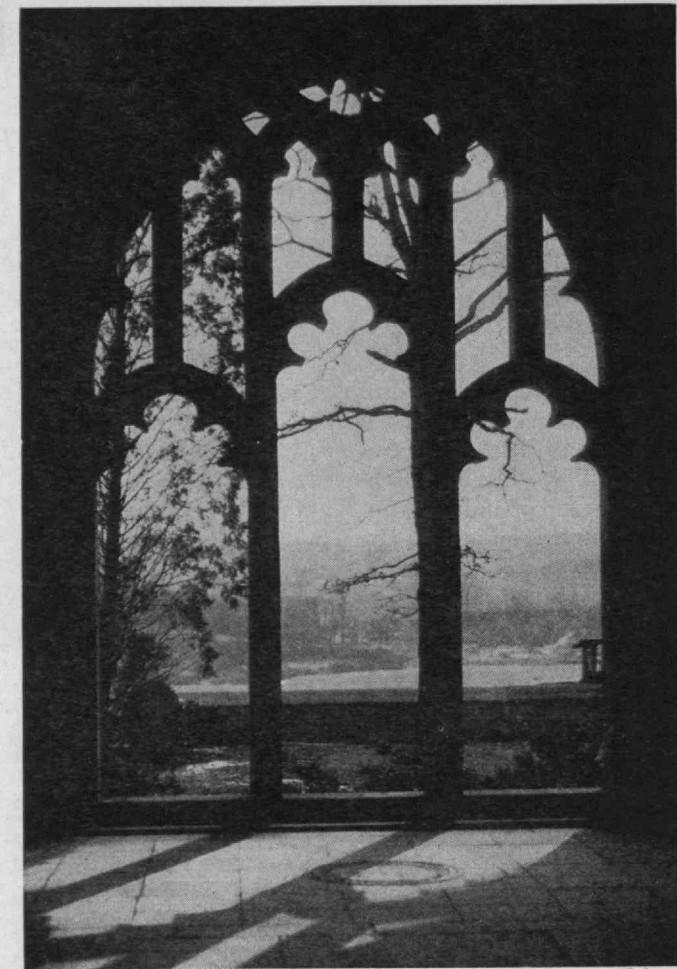
upset expectations, and create anxieties. These conflicts have a number of distinct patterns. The most important of them seem to center around the explosive questions of ownership and of industrial relations, as management-labor problems have come to be called.

Conflicts over ownership are ancient, but the form which they have taken under conditions of industrialism are historically novel. Absentee ownership, for example, was a central principle of the agricultural feudalism of medieval Europe. Great areas of land and people were often held in fief and subject to the fixed charges and decisions of distant masters, represented by a graded series of subordinates. Unlike its modern counterpart, agricultural feudalism was built upon an intricate and respected set of reciprocal rights and duties which extended from the lowliest villein to the highest lord. On the other hand, industrial feudalism is a creation of the pecuniary complex; it is a one-sided structure of demands, expressed in expectations of continuing money-income at whatever cost to physical or social or human resources. Its philosophy is unadulterated colonialism in which wealth and talent are drawn off to its metropolitan centers of power and influence while its hinterlands are drained of initiative and enterprise. The same dramatic themes are enacted over and over. The concentration of authority, the debauching of politics, the fraudulent misrepresentation of values, the corruption of communities, the desiccation of initiative have become commonplace.

### ***Big Business and Small***

Another conflict of industrialism which is bitter, widespread, and ominous is that between small and large businesses. American industrial history has been filled with it from the 1860's on. The steady march toward increased size was made possible by conquests over nature and the small man. Combinations, conspiracies, cut-throat competition, and corruption have been significant, powerful tools of massed mechanization. Little business is still the rallying-cry of industrial peoples with democratic dreams. At the same time, trust-busting is still an altar of sacrifice on which an occasional corporate goat is laid to appease a wrathful public. The language of small business employs the vocabulary of classic industrialism. Its phrases and word magic are picked up by the big and successful enemies of small business who delight in using them as a cloak for their own operations. For in our day the omnipotent State is no respecter of persons, and the large and small must bow before the mysterious providence of its own manifest destiny. Even in those places where big business has not fallen on the evil days of Fascism, it reads with alarm the handwriting of successive social legislations which redefine the authority and curb the excesses of business. For this reason, big business seeks safety behind the protective coloration of the little man. "Freedom of enterprise" becomes a line of defense — for bigness.

Less articulate, perhaps, and certainly more diffuse, but hardly less emotional, is that conflict which goes on between nonowners and owners of industrial enterprise. Marx wrote of it as a conflict between tool-less labor and tool-owning capital. Perhaps it is. But its backgrounds lie among the resentments felt by any creative people who know that their prospects for private property in production techniques are poor if not hopeless. In any case, the remedy is not likely to be that

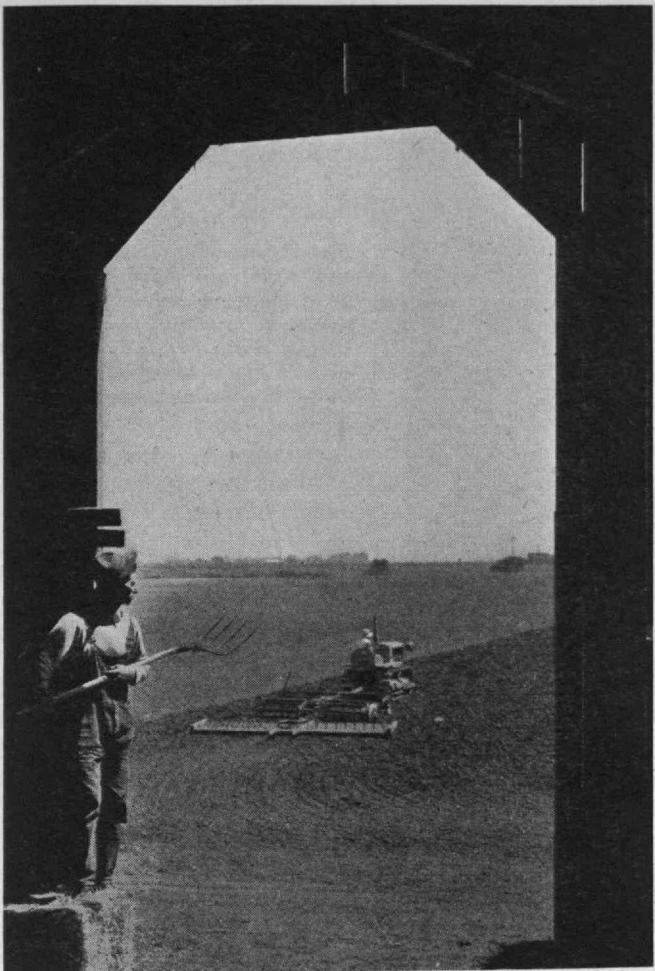


H. Armstrong Roberts

*The sacred is weak and ineffectual, and the comfortable routines of religious ritual are things apart from daily interests.*

proposed by Marx. On the face of it, abstract, collective property ownership in place of a no less abstract, corporate property ownership does not seem to mean a profound revolution for nonowning industrial people. Yet collective ownership has been the goal of most Left-Wing political movements for a century. It has made moderate headway and in one country has been completely adopted. It should be clear, however, that the difficulties and evils of an industrial culture change only their names when that culture moves from individual abstractness of property to collective abstractness. The sharp dichotomy between a capitalist and a communist industrialism is a pathetic, if pleasurable, self-delusion.

The conflict between owners and nonowners, between those who have and those who have not, has its origin in a moral assertion of the right to property. Property ownership is a human and social institution protected and promoted by even the most primitive peoples. Our moral insight tells us that on such rights alone can be built an enduring, human personality and social structure. A society whose property aspirations are blocked is not secure; its mood is dangerous, and its morale needs the emotions of nationalism, or some other displaced aggression, to canalize its frustrations. Marx sought to lift this moral sensitivity onto the plane of depersonalized dialectics to win for it an irrefutable cogency which it does not have. But while Marxists were busy spinning their web of a philosophy of history, social protest movements were whittling away at the in-



*Photo by Caterpillar Tractor Company*

*Their pattern of living is smooth, personal, simple, and homogeneous. The essential job of production is one of collaboration.*

dustrial system with such reforms as would maintain, if not enlarge, the sphere of personal jurisdiction over production. This is the story behind the social legislations of the past two generations. In our day "have not" is a fighter's phrase, not of a people seeking a cash dole but of those who hope to achieve a just and honorable property system which provides for all men a means to express their being. The leadership of industrial societies dare not temper with the emotions which are aroused by those who picture themselves, with or without just cause, in the "have not" camp.

#### *The Protest of Labor*

Without any doubt the storm center in industrial life is the conflict between labor and management. Here opposition in industrialism loses any vagueness and lack of direction it may have and becomes overt, organized, and engineered. Its vehicles are the labor union and the employers' association. Both have developed in order to safeguard and advance special interests. At times, both have drawn a hard and fast line between their worlds, have declared war on each other, and have been forced to negotiate peace. Both make overtures to the general public and both have recourse to government but, unfortunately, neither is fully prepared to confess a community of interest between them.

The labor movement has been a protest movement. Its objects of concern have grown out of the contractual wage status, the depersonalized and massed relationships of

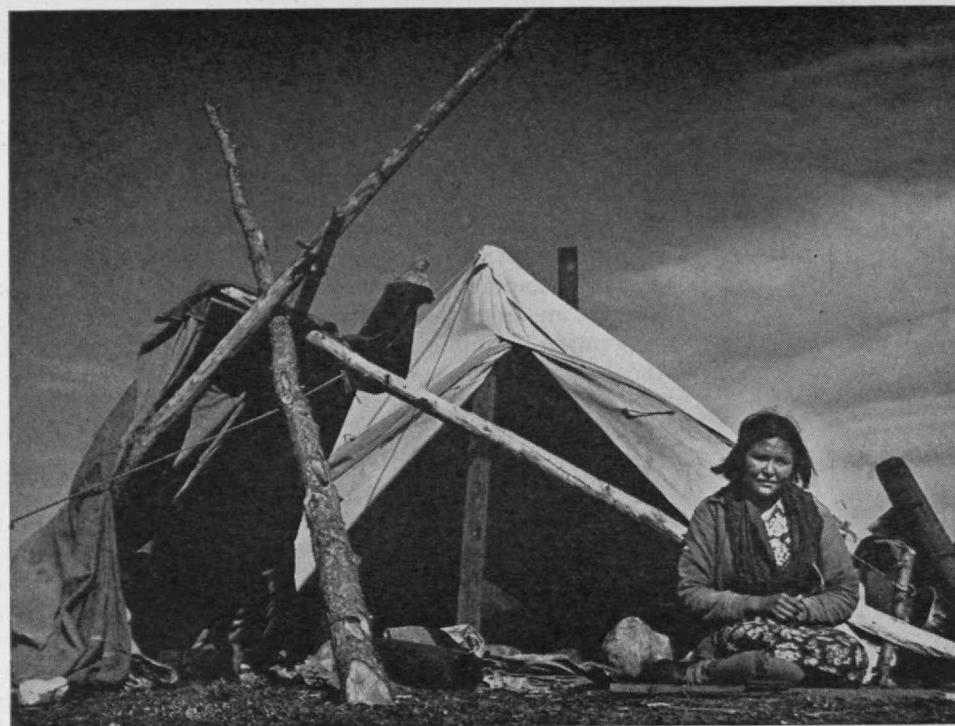
industry and the propertyless and unprotected position of labor as a commodity bought and sought in a changing market. Violent when provoked, and occasionally revolutionary, organized labor has been primarily a business-like response to a businessman's civilization. The labor movement, an outgrowth of the mass phenomena of industrialization, is also an expression of the several technological interests and roles of the industrial worker. In many ways, unionization and its attendant activities represent the introduction of civil rights into industrialism. It aims to establish an industrial jurisprudence made imperative by failures in the bargaining procedures, by the black-listing, espionage, paternalism, and superior economic strength of employers' associations. But although grown up, organized labor has still to mature, to come of age. It cannot forever be on the receiving end, making demands without also giving concessions. It is apparent to all observers that in terms of economic and social resources, organized labor is now a peer of corporate business.

From the standpoint of advanced management and possibly of an informed public, a strong labor movement is no longer an unmixed evil. Management is swinging to the view that the industrial worker is not a machine but a customer, not a commodity but a citizen, not an operative but a person. The business of management is agreement. The essential job of production is one of collaboration. Human beings, though not to be regarded as machines, must have a machinery of social adjustment. In order to operate effectively, the technical organization of production must rest upon a community organization which is free to operate efficiently. The values, which the enlightened industrial statesmanship of a George Johnson or a Chester Barnard are realizing and promoting, are in the last analysis precisely what an enlightened labor leadership has been urging upon industry for two or three generations. One of the most heartening signs of our time is the gradual, even if limited, acceptance of labor-management councils, personnel departments, labor-management forums, worker education, and similar ideas, as the folkways and mores of industrial production. Nothing could be more effective in reducing the risks and incidence of industrial war.

#### *Human Insignificance*

Many students of modern society are inclined to regard labor-management and other such conflicts of industrialism as the fruit of isolation, rather than of innate differences of interest. They point to the mobility and the distance of human contacts which industrialism has stimulated. They emphasize particularly the specialization of the productive processes and point out that division of labor induces bondlessness, except in the narrow, self-centered, horizontal economic interests. In no other society, they contend, has the individual found it so difficult to become a significant human being, and in no other society is community of interest and purpose so improbable, if not impossible. Difference is aggravated by deprivation of social impulses, and opposition springs from the fragmentation of social experience and the impoverishment of mutual understanding.

The explanation of this situation seems to lie in the industrial community. Human relations are formed in, and expressed through, the community. Much of the impact of industrialism upon human relations has been



*Property ownership is a human and social institution protected and promoted by even the most primitive peoples. Our moral insight tells us that on such rights alone can be built an enduring structure.*

*Photo by W. Eugene Smith from Black Star*

delivered by way of this organization for living. While perhaps not inevitable, the transformation of community life by industrialism has been far-reaching, if not devastating. Indeed, the keen interest in community study of the last 25 years grew directly out of the concern over community disarrangement as a result of industrial misorganization. Community life of today has pathologies which, although not unique historically, are certainly more common and aggravated than at any other period. For into the pattern of the community, industrialism has built walls which isolate, highways which accelerate, and dead-end streets which frustrate human relations. The fast-moving stream of human contacts turns out to be a shallow volume of socialized life; forms must do the work of impulses, while mass gains the significance which rightfully belongs to individuality. In no place have human ends become so lost and subordinate to human means as in the crowded modern industrial city. The city becomes the prototype of the industrial group; it is large, impersonal, mechanical, and unwieldy.

### *Cities of Industry*

The urban system has been the twin of the factory system, and neither could have survived without the other. They are both the fruit of massed mechanization. Industrial society has nullified the small, face-to-face primary groups: It has seceded from the union of intimate and direct associations, and it has set up a confederacy of loosely organized, autonomous interest groups. As a result, it has plunged human relations into a civil war of incompatible, uncomprehending, and contending social forces. As in all warfare, it is the individual who pays the price of victory and defeat, and the subtle nuances of individual social expression are overwhelmed by the strategies demanded by commercialized groups. The individual becomes a partisan of mass organizations which deal in harshly drawn and ill-understood issues.

The carrier of this culture has been industrial metropolitanism. Of course, there have been great cities before

in history, and wherever they have appeared, life has revolved around them. But the modern metropolis is something new, and it is a place of strange and disturbing paradoxes. The organization of its life is centralized and hierarchical, but its spatial pattern sprawls designlessly. The metropolis concentrates huge, mixed segments of population, but it fosters social distances among its people. It has been both responsible for, and the product of, an incredible multiplicity of interests, but the life of the average individual citizen is plain and unattractive. A remarkable level of material success has been made possible, but the physical structure of metropolitan existence is shabby, ill-kept, costly, monotonous, and barren.

The industrial city has been built upon the technological conquest of space, and yet its perennial problem is one of congestion. Its growth has been quickened by the economic calculations of profit and loss; but the city is an expensive investment with its assets frozen and its future bound by complicated credits and speculative ventures. There is a fantastic range of personal incomes and mass poverty amid the scene of tremendously rich operations. The city is the product of engineering and yet no engineering entered into its over-all expansion.

The paradoxes of the modern industrial city extend beyond its economic aspects and reach into the philosophic, cultural, and human aspects of society as well. The metropolis is maintained by a diversely talented population whose individual members, seldom achieving status as significant human beings, are content with narrow specialties and spectator enjoyments. Among its people there is little philosophic insight into the values of the new way of life which the city makes possible. The extent and variety of occasions for human contacts have been greatly magnified, but there is no ritual or mediating device for those contacts except specialized interest or cash. Education for group life is barren and dry. The populace becomes a seething mass in search of externally applied pleasures as opiates for its inability to find substance within. The metropolis (*Concluded on page 364*)

# A Study of Man Embracing Error

## Fossilized Skeletons of Prehistoric Man Serve to Remind Us that Prejudice Has No Place in Science

BY M. F. ASHLEY MONTAGU

OSCAR WILDE, in *The Picture of Dorian Gray*, makes one of his characters say: "I wonder who it was who defined man as a rational animal. It was the most premature definition ever given." In his delightful *Desert Islands*, Walter De La Mare refers to *Homo sapiens* as "raw homo, that is, with little admixture of *sapiens*." For he who would be wise should be careful. This is particularly true of the study of *Homo sapiens fossilis* by *Homo sapiens recens*.

In the study of prehistoric man there have been plenty of opportunities for the perpetration of deliberate hoaxes. The stretches of time dealt with are long, running into hundreds of thousands of years, the character of the remains are often uncertain, and the beds from which they are recovered are so frequently untidily disarranged that the greatest of authorities may sometimes be deceived. They are not, however, usually deceived by the deliberate hoaxer, who, for lack of the necessary specialized knowledge generally stands very little chance of succeeding. Possibly for this reason there have been very few attempts at deliberate hoaxes in the study of prehistoric man. The deceptions that have been perpetrated fall into the class of simple errors due, in almost all cases, to overenthusiasm, but also, in not a few cases, to ignorance.

### Prejudice Injected into Science

Like other men, scientists are not immune to prejudice: They tend to be least immune from the action of their prejudices when they are least aware of them. Scientific method really amounts, as P. W. Bridgman has said, to doing intensely one's very best with one's mind. A person, it may be added, is not necessarily a scientist because he uses the methods of science, but that person is a scientist who uses any reasonable method in a scientific manner.

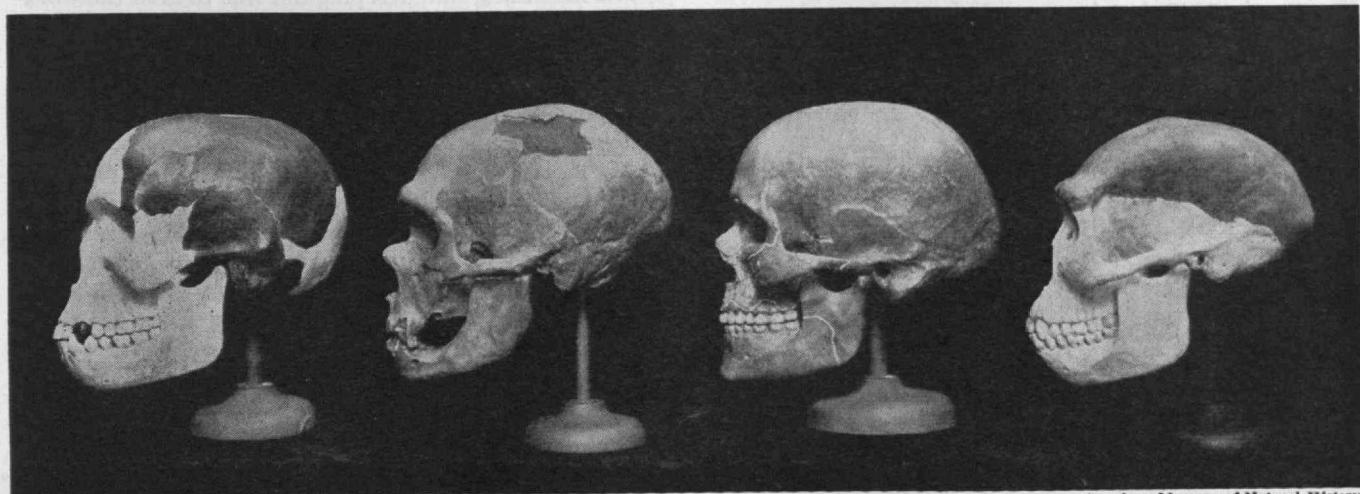
A fair sprinkling of students of prehistoric man have used the methods of science somewhat unscientifically, and, in a number of cases, the errors into which they have thus been led have even yet been uncorrected and circulate in the debased coinage of an earlier day.

In the days when ignorance and prejudice combined to limit the age of the earth to 6,000 years, and the vice-chancellor of Cambridge University, Dr. Lightfoot,<sup>1</sup> put the creation of the earth at exactly 9:00 o'clock in the morning of October 23, 4004 B.C., it was believed by the orthodox that man had been created in a state of physical perfection by a single act. Therefore, it was inconceivable that there should lie hidden anywhere in the earth's crust the fossilized remains of early men. Up to the time of Lightfoot's death, no fossilized human remains had been turned up to challenge orthodox belief.

Contradictory to Dr. Lightfoot's estimate and the Biblical account of creation, fossil remains had indeed been discovered earlier than 100 years ago. The bones were described as those of *Homo diluvii testis* — "Man, witness of the Flood." This notable discovery was due to Professor Johann Scheuchzer of Zurich who, in 1726, described the remains<sup>2</sup> as a "rare relic of the accursed race of the primitive world," and exclaimed piously: "Melancholy skeleton of an old sinner, convert the hearts of modern reprobates!" Unfortunately, this rare relic of ancient man was later shown to be nothing more than

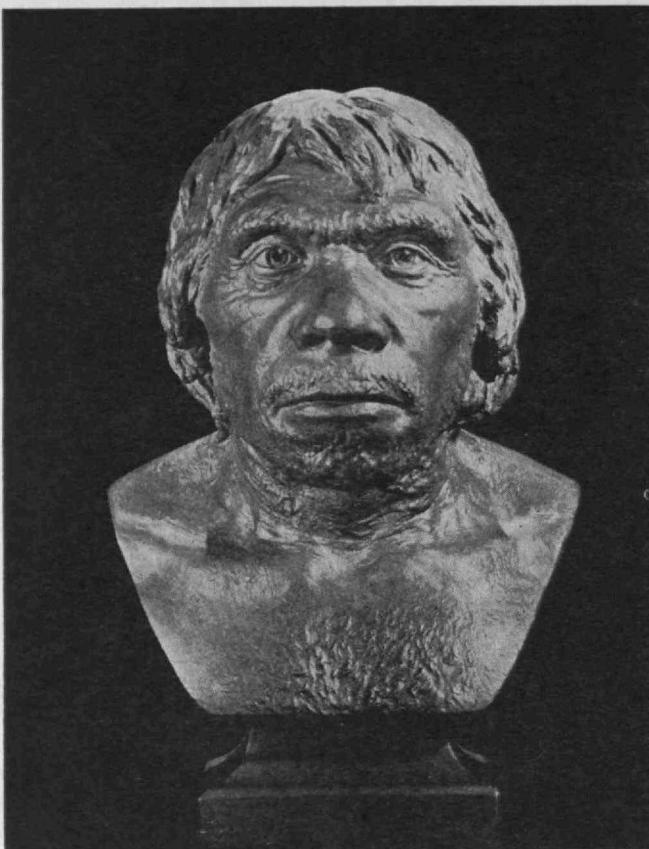
<sup>1</sup> John Lightfoot, D.D., (1602-1675). See his *Prolegomena* in Pitman's edition of *Lightfoot's Works*, London, 4:64, 112 (1822). "Heaven and earth, centre and circumference, were created together, in the same instant, and clouds full of water, . . . this work took place and man was created by the Trinity on the twenty-third of October, 4004 B.C., at nine o'clock in the morning."

<sup>2</sup> Scheuchzer, Johann. Scheuchzer's *Homo diluvii testis* is now on display in the Taylor Museum at Haarlem.



Skulls of prehistoric man. In usual reading order are the remains, partly restored, of Piltdown, Neanderthal, Cro-Magnon, and Pithecanthropus skulls.

American Museum of Natural History



American Museum of Natural History

*Did Neanderthal man really look like this reconstruction? Where the slightest degree of likeness is the criterion of exactness, it is impossible to reconstruct the facial appearance of extinct men from their skulls. The expression of early man was probably no less benign than our own.*

the fossil remains of a giant salamander. But disclosure of the true nature of the remains had not been made before the fossil had enjoyed great celebrity and had been visited by thousands of awed pilgrims.

Meanwhile the fossil skull of a truly ancient man, which had been discovered at Cannstatt in 1700, rested peacefully on the shelves of the Stuttgart Museum for the next 135 years, undisturbed, undescribed, and unrecognized for its true worth.

The first skull of Neanderthal man was discovered at Gibraltar in 1848, but it aroused absolutely no interest, and remained undescribed until 1907. The skullcap found at Neanderthal in 1857, from which the name of this type of skull is derived, was said by the great Rudolf Virchow to be that of an idiot, a pathological specimen. Another savant declared it to be the top of the head of a French prisoner of war, deposited by some mischance in the cave in which it had been found. But there were other men, like King,<sup>3</sup> Huxley,<sup>4</sup> and Schaafhausen,<sup>5</sup> who were convinced, as their writings show, that this skullcap was that

<sup>3</sup> William King (1809–1886), Professor of Geology, Queen's College, Galway, Ireland. "The Reputed Fossil Man of Neanderthal," *Quarterly Journal of Science*, 1:88 (1864).

<sup>4</sup> Thomas Henry Huxley (1825–1895), Professor of Natural History, Royal School of Mines, London. *Zoological Evidences as to Man's Place in Nature*, London, 1863.

<sup>5</sup> D. Schaafhausen, Professor of Anatomy, University of Bonn. "On the Crania of the Most Ancient Races of Man," *Muller's Archiv.*, p. 453 (1858); translated by George Busk in *Natural History Review*, London, April, 1861.

of an ancient man. Their views, however, received very little credence, and the leading character in the drama was persistently kept from making his appearance on the stage.

### Prehistoric Relics to Order

During these years, Boucher de Perthes,<sup>6</sup> a customs officer from the small town of Abbeville, France, was engaged in excavating caves and searching all sorts of likely places for the remains of primitive man. Boucher had had the good fortune to recover many stone implements which he was convinced could only be the work of man. Unfortunately the only evidence capable of clinching his argument and effectively convincing others of its truth was lacking, namely, the fossil remains of man himself. Boucher therefore was determined to find that evidence.

It was his custom to reward the workmen of the gravel pits with a gift of two francs for any axes they might find and bring to him. He now made the offer of 200 francs for the first fossil remains of ancient man to be found. This offer stimulated the workmen to keep a more careful lookout but it also stimulated some of the men to ingenious legerdemain. Boucher's rewards had already had that effect on a two-franc basis. An old resident of Abbeville tells the story that, observing a workman striking flints in front of his door one day, she asked him what he was doing. The workman replied: "I am making Celtic axes for M. Boucher de Perthes!"

A race ensued among the workmen, each of whom wished to receive the reward, and, of course the inevitable happened. On March 23, 1863, one of the workmen brought Boucher two flint axes and a human tooth which he said he had found in the pit at Moulin-Quignon. Further work in the pit under Boucher's supervision led to the discovery of several more axes and teeth, and, most priceless of all, a jawbone which differed, in Boucher's expectant eyes, from that of contemporary man.

News of the discovery traveled around the world and gave rise to heated controversy. Many visitors came from abroad to view the famous pit among whom was the English archaeologist, John Evans.<sup>7</sup> Evans obtained permission from Boucher to send over a specialist named Jean Keeping to examine the pit in detail.

The first thing that Keeping did was to give the workmen a holiday for a few days. Then he went to work. He found that the axes were forgeries; that they had been recently inserted into the sides of the pit, as the disturbed earth clearly revealed. He found, in short, that M. Boucher de Perthes had been deceived. It soon transpired that the jawbone, probably of some Gallo-Roman or Celt, had been brought to the pit from a surface site some distance away from which it had been recently recovered. The extent to which authenticity was attributed to the jawbone may be judged from the fact that the most learned professor in these matters in France, M. de Quatrefages,<sup>8</sup> read a paper before a learned society who

<sup>6</sup> Boucher de Crèvecœur de Perthes (1788–1868), French archaeologist. *Antiquités Celtiques et Antédiluvaines*, 1847–1864. See Volume I, *De l'Industrie Primitive ou des Arts à Leur Origine*.

<sup>7</sup> John Evans (1823–1908), English archaeologist and paper manufacturer. *The Athenaeum*, July 4, 1863.

<sup>8</sup> Jean Louis Armand de Bréau de Quatrefages (1810–1892), French anthropologist. *Rapport sur le Progrès d'Anthropologie*, Paris, 1867.

accepted this remarkable jawbone as being completely authentic. Perhaps the reputation of M. de Quatrefages was so thoroughly established that the members of the society dared not question his authority.

Poor Boucher was unlucky. He remains the greatest archaeologist of his day and the most advanced. His enthusiasm for his subject and his courageous and intelligent conviction that the remains of fossil man must somewhere, sometime, be found together with his artifacts, caused him too easily to accept what he wished to find. The too-ready acceptance of the appearance of reality is a very old, a very human, and a very enduring weakness. Quite as old is the contrary failing; refusal to accept what one does not wish to see. Right into the Twentieth Century the claim to antiquity of the remains of undisputed fossil man have been rejected as ancient because they were found in deposits which the prejudices of some scientists would not admit. Such, for example, has been the fate of Galley Hill man, and of the skeletal remains discovered at Swanscombe, in England, about 1912. The latter are now lost, but in 1935-1936, in a nearby pit, the remains of another fossil skull of *Homo sapiens* were found, thus vindicating the honor of the earlier representative of what was probably a member of the same group.

### **How He Got an Ugly Face**

When the accumulating evidence made it impossible any longer to deny that the group represented an extinct type of man, Neanderthal man was gratuitously endowed with a rather brutal social, as well as physical, character. Much was made of his overhanging brow ridges and absent chin. Interestingly enough, the fact that he had a larger brain than modern man, both absolutely and relatively, was strangely overlooked. When in 1911-1913, Marcellin Boule<sup>9</sup> published his reconstruction of the Neanderthal man found at La Chapelle-aux-Saints, he endowed the poor fellow with a bull neck, a stoop, a gorilla-like spinal column and knock-knees, principally because Boule felt that Neanderthal man ought to look like a brute. It goes without saying that such a brute deserved only to be exterminated, and so exterminated he was — by the anthropologists. This eugenic-Hitlerian *ausmerzen*, as the Nazis referred to the technique of race-extinction, was achieved through the agency of the race which succeeded Neanderthal man, namely, high-browed Cro-Magnon man, a man like ourselves. This notion fitted perfectly with the conception of "the survival of the fittest" creed held by so many Nineteenth-Century thinkers and their descendants who have survived into the Twentieth Century. And so poor Neanderthal man was exterminated.

Once more, accumulating evidence began to render this widely held theory somewhat dubious. In the light of the newer evidence, many a student still under 40 who once shared the orthodox view has found that Neanderthal man must have run away in order to fight another day. The evidence is now quite clear that Neanderthal man mixed with types like Cro-Magnon man and that we are the descendants of such mixed types. As a distinct type Neanderthal man became extinct only by being absorbed into the larger populations of *Homo sapiens*.

<sup>9</sup> Pierre Marcellin Boule, "L'homme fossile de la Chapelle-aux-Saints," *Annales de Paleontologie*, 6:112-172; 7:85-192; 8:1-70 (1911-1913).

### **Russians Reverse the Process**

If one may judge from the reconstruction, by Russian scientists, of the Neanderthal child recently found in the Teshik-Tash cave in Southern Uzbekistan, the Russians have gone to the other extreme in humanizing maltreated Neanderthal man, for they have made the nine-year-old child look like a little Russian boy complete with re-troussé nose.

Less excusable than Boule's reconstruction of Neanderthal man is the violence perpetrated upon the skeletal remains of Rhodesian man. As Professor Wood Jones<sup>10</sup> has remarked: "Probably no more somber practical joke has ever been played upon a human skeleton than that which Mr. W. P. Pycraft<sup>11</sup> perpetrated. For want of a little elementary knowledge of the normal anatomy of the human pelvis, Pycraft has lately condemned a perfectly upright representative of the genus *Homo* to masquerade as the type of a new genus *Cyanthropus*, since it 'walked with a stoop, with the knees turned outwards.'"

Such reconstructions are possible not only because of the want of an expert knowledge of human anatomy but also because of the somewhat naïve notions held by many persons concerning the physical traits of earlier forms of human beings.

Even less justifiable are the attempts to reconstruct the facial appearance of extinct men from their skulls. As Lander,<sup>12</sup> Wood Jones,<sup>13</sup> and Glaister and Brash<sup>14</sup> have shown, where the slightest degree of likeness is the criterion of exactness this is quite impossible of achievement. From a skull it is quite impossible to reconstruct the character of the hair, eyes, nose, lips, ears, eyebrows, skin creases, fullness, or expression. In short, it is impossible to reconstruct the appearance of the face. Nevertheless, such fancy reconstructions are to be found in almost every book dealing with the evolution of man. It is highly desirable that they should be dropped, for they do real harm. Their creators have endowed them with traits and expressions which follow the formula that the earlier or more primitive the type, the more brutal; the later the type, the nobler the expression. The probabilities are that the expression of early man was not less benign than our own.

### **Facial Reconstructions**

As if in answer to these strictures, there appeared, after the main body of the present article was written, several papers on the reconstruction of the facial appearance of a dissecting-room cadaver from the skull.<sup>15</sup> These reports by Dr. W. M. Krogman are of considerable interest. Dr. Krogman measured the head of a cadaver in the customary anthropometric (*Continued on page 356*)

<sup>10</sup> Frederic Wood Jones, *Man's Place among the Mammals*, London, 1929, page 363.

<sup>11</sup> W. P. Pycraft, *British Museum Report on Rhodesian Man and Associated Remains*, 1928; and *Man*, December, 1928.

<sup>12</sup> K. Lander, "The Examination of a Skeleton of Known Age, Race, and Sex," *Journal of Anatomy and Physiology*, 42:282-291 (1918).

<sup>13</sup> Frederic Wood Jones, *Man's Place among the Mammals*, London, 1929, pages 363-365. See also H. von Eggeling, *Physiognomie und Schadel*, 1911.

<sup>14</sup> John Glaister and James Couper Brash, *Medico-Legal Aspects of the Ruxton Case*, London and Baltimore, 1937.

<sup>15</sup> W. M. Krogman, "The Reconstruction of the Living Head from the Skull," *FBI Law Enforcement Bulletin*, July, 1946; "Whose Skull Is It?" *Scientific Monthly*, 53:315-316 (1946).

# THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

## Television Short Circuit

APPROXIMATELY 1,000 Alumni gathered at Walker Memorial on the evening of Saturday, February 8, for the mid-winter dinner meeting of the Alumni of Metropolitan Boston, at which was featured a demonstration of a complete television system — from performers' stage to the viewing screens of individual receivers.

Alumni gathered for dinner at Walker, and seating was arranged by classes to facilitate the renewing of old acquaintances. Upon conclusion of the dinner pleasantries, those in attendance smoked and chatted in the outer lounges while Morss Hall was made ready for the evening's program of addresses and television entertainment.

Harold Bugbee, '20, President of the Alumni Association, first introduced H. E. Lobdell, '17, recently appointed Executive Vice-president of the Alumni Association. He, in turn, introduced Dr. Everett M. Baker, new Dean of Students, who made a brief response. President Compton was then called upon to announce recent developments taking place at M.I.T.

In his usual inspiring manner, Dr. Compton spoke of the Institute's plans for the future, emphasizing the urgent need for buildings and facilities which will make it possible to grasp opportunities in education and research which have developed from war experience. He paid a warm tribute to members of the staff whose interest and energy are advancing M.I.T.'s program of reconversion to peacetime activities.

Keynoting the evening's activities was a paper, "Television — Retrospect and Prospect," delivered by Dr. Vladimir K. Zworykin, associate director, R.C.A. Laboratories. This paper, which The Review is happy to present on page 333 of this issue, discusses significant technical achievements in the development of modern television, and peers into the social significances which may be expected to accrue from the widespread visual entertainment and instruction when television programs are firmly established on a nationwide basis.

Under a program arranged by Professor John T. Rule, '21, and worked out in conjunction with engineers and program directors of the R.C.A. Laboratories, an interesting television program followed Dr. Zworykin's paper. Opportunity was given for those in the audience to witness all phases in the production of a television program — from the original action on the stage, through camera pickups and the complicated analysis, transmission, and synthesis of the visual image — to the black and white pictures on the screens of some two dozen receivers which were distributed throughout Morss Hall. The complete television circuit was no longer than a few hundred feet, and the audience had excellent opportunity to compare the image on the screens of the receivers with the stage presentation in "live talent."

In the program of television entertainment, Professor

Albert A. Schaefer, Department of Business and Engineering Administration, acted as master of ceremonies. The program was designed to show the capabilities of television transmission, and included a demonstration of the effectiveness of fire extinguishers by Professor Arthur R. Davis of the Department of Chemistry, Hawaiian and ballet dancers, an exhibition of fencing, magician's tricks, and blackboard cartoon drawings by Francis W. Dahl of the *Boston Herald*.

For many who attended, this program provided the first opportunity to view television images of any sort; for a much greater number, it offered the unusual additional feature of a completely mobile pickup and self-contained distribution system enabling all essential steps in a television production to be witnessed simultaneously. But for all who were fortunate enough to be present, the demonstration was a truly entertaining and highly appreciated *pièce de résistance*.

## Kurt Lewin, 1890–1947

PROFESSOR Kurt Lewin, director of the Research Center for Group Dynamics at M.I.T., and internationally known as an authority on group psychology, died suddenly at his home in Newtonville, Mass., on February 12, 1947.

A native of Mogilno, Germany, where he was born on September 9, 1890, he is survived by his wife and four children. Professor Lewin was educated at the University of Freiburg and the University of Munich, and was graduated from the University of Berlin with the degree of doctor of philosophy in 1914.

In 1932 Dr. Lewin came to the United States from the University of Berlin where he had been associate professor of philosophy since 1921. He served as a visiting professor of psychology at Stanford University from 1932 to 1933 and was acting professor of psychology at Cornell University from 1933 to 1935. From 1935 to 1944 he was professor of psychology at the University of Iowa and was appointed a visiting professor at Harvard University for one semester each in 1939 and 1940. Dr. Lewin had been a consultant to the United States Department of Agriculture since 1942 and to the Office of Strategic Services since 1944.

The appointment of Dr. Lewin as director of the Research Center for Group Dynamics at the Massachusetts Institute of Technology came in 1944, and the center was made a division of the Institute's Department of Economics and Social Science. It provides an integrated approach to a relatively new field within the social sciences and supplements the activities of the Institute's Industrial Relations Section. The research center was established through a grant of the Marshall Field Foundation of New York and Chicago, Inc., and received additional grants from the Commission on Community Interrelations, which is sponsored by the American Jewish Congress.

## Assistant to Dean of Students

**A**POINTMENT of James Lee Phillips, World War II veteran and member of the Senior Class in the Course of Business and Engineering Administration at the Institute, to the new administrative post of assistant to the Dean of Students, was announced in February by Dean Everett M. Baker. In this post Mr. Phillips will assist Dean Baker in contacts with students and their activities.

Announcing the new appointment, Dean Baker said: "Mr. Phillips' duties and responsibilities will be to serve as assistant to the Dean of Students in his responsibility for the Institute's relationships with student government and recognized student activities, including athletics and fraternities. It was because of Mr. Phillips' recognized leadership as chairman of the Interfraternity Council and his interest and activity in athletics that he was invited to fill this new position. It is assumed that the position will not be permanent but that from time to time, at intervals of two to three years, the assistant to the Dean of Students will change in order that the office will always have a representative of undergraduate interest and attitudes whose first-hand knowledge and opinions are immediately related to student affairs. The developing plans for increased emphasis on the improvement of living, recreational, and extracurricular activities of the Institute indicate the importance of Mr. Phillips' responsibilities." The new appointment is significant because of the close link it provides between students and the Administration at a time when the Institute's student body is much larger and of different composition than at any previous time.

## For Meritorious Achievement

**J**AMES M. AUSTIN, Associate Professor in the Institute's Department of Meteorology, has been awarded the Medal of Freedom by the Commanding Officer of

the United States Forces in the European Theater. The medal was presented to Dr. Austin in the presence of members of the staff of the Department of Meteorology with the following citation:

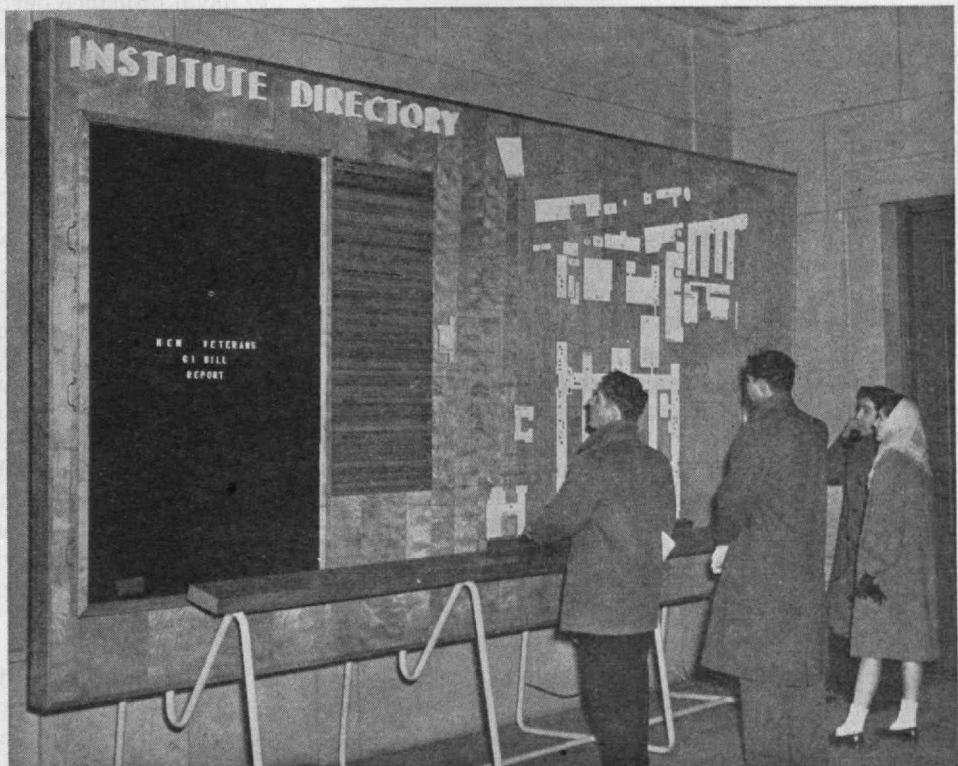
"For exceptionally meritorious achievement which aided the United States in the prosecution of the war against the enemy in Continental Europe, as Special Consultant, 21st Weather Squadron, Ninth Air Force, European Theater of Operations, from 22 April 1944 to 5 September 1944. He displayed great intelligence, thorough professional knowledge, and outstanding devotion to duty under adverse field conditions in developing forecasting techniques in the European Theater of Operations. While serving as one of the principal forecasters engaged in predicting the weather for the Normandy invasion and the Northern France campaigns, he, through his timely and expert advice and ingenuity, was highly instrumental in the success of those campaigns, thereby materially contributing to the final victory."

## To Further Applied Mathematics

**P**RINCIPAL discussion at the meeting of the Visiting Committee on the Department of Mathematics \* on May 31, 1946, centered on the strengthening of the work in applied mathematics, particularly at the graduate, or near graduate, level. As far as American science and technology are concerned, it is extremely important that this field be greatly strengthened as rapidly as possible. There is already active interest in the matter at a number of institutions, notably Brown University, New York University, Princeton University, and the California Institute of Technology. Because of its size, location, and pre-eminence, and because of the diversity of its engineer-

\* Members of this Committee for 1945-1946 were: Frank B. Jewett, '03, chairman, William S. Newell, '99, Daniel F. Comstock, '04, Roy W. Chamberlain, '31, Hugh Dryden, Warner Eustis, and Joseph W. Powell.

*To aid visitors and students in finding their way about the labyrinthian corridors of M.I.T., a large Institute directory has been installed in the lobby of Building 7 outside of the Information Office. This electrically operated directory shows, by means of a continuously burning red lamp, the location of the board. Reference to the directory will give the number corresponding to the major offices and departments, and by punching the number thus determined, the floor and position of the desired office are immediately indicated by the illumination of a small lamp on the scale model of the Institute buildings.*



## Class Reunions

Plans for reunions this year have been announced by secretaries of the following classes:

- 1877 June 14, luncheon at the Hotel Statler, Boston.
- 1882 Probably no reunion.
- 1887 The Class President has sent out a questionnaire and announcement of reunion plans will be made later.
- 1888 The usual annual dinner will be held in May but the time and place have not yet been decided.
- 1892 A reunion is expected but plans are not yet finally arranged.
- 1897 June 10-12 (tentative date), East Bay Lodge, Osterville, Mass.
- 1902 June 12-13, East Bay Lodge, Osterville, Mass., adjourning on the 14th for Alumni Day in Cambridge.
- 1905 June 13-15, East Bay Lodge, Osterville, Mass.
- 1907 June 20-22, Oyster Harbors Club, Osterville,
- 1912 June 6-8, East Bay Lodge, Osterville, Mass. Ernest W. Davis, chairman.
- 1917 June 6-8, Wentworth-by-the-Sea, Portsmouth, N. H. Chairman, W. I. McNeill assisted by H. E. Stout.
- 1922 June 13-15, Hotel Rockmere, Marblehead, Mass.
- 1927 June 21-22, East Bay Lodge, Osterville, Mass. Ezra F. Stevens, general chairman.
- 1932 June 7-8, Wentworth-by-the-Sea, Portsmouth, N. H. Thomas E. Sears, Jr., chairman.
- 1937 Reunion probably on Cape Cod a day or two prior to Alumni Day, with simultaneous gathering of classmates somewhere on West Coast. Anticipated that wives will be invited.
- 1942 Some form of reunion in Cambridge over the weekend of Alumni Day, June 14. Details later.

Additional information will be available from class secretaries

ing interests and its unique technological facilities, M.I.T. is peculiarly indicated for leadership in this field, which is of the utmost importance to science and engineering.

Roughly speaking, the problems which confront the Department in strengthening this aspect of its program are three: attracting a competent staff, determining the best setup for applied mathematics within the structure of the Institute, and disseminating a better general knowledge of what the Institute is in a position to give.

The evidence indicates clearly that while the United States is presently rich in outstanding men in fundamental or pure mathematics, it is woefully deficient in such men in the field of applied mathematics. Consequently, there is intense competition for these few men, not only between educational institution but also, to some extent, between universities and industry. In all probability no institution will be able to secure all the first-rank men it should have to staff its department fully, and it will have to build its staff up gradually as younger men of ability mature and are attracted to the field.

While doubtless not unique in the Department of Mathematics, the problem of competing with the higher salaries paid in industry is certainly an important one of the Department's present needs. Probably nothing that can be done in this direction will alone suffice and there is consequently necessity for the Department and the Adminis-

tration to do everything possible to provide opportunities and facilities which will attract men to the staff against the lure of higher remuneration elsewhere. Because of the strength of its scientific and technical departments, it would seem that M.I.T. should certainly be in a position to afford outstanding men a wealth of opportunity for creative work in mathematics, such as no other institution in the country could match. The Committee feels that basic to success is the full utilization of all the Institute's facilities to strengthen the work in applied mathematics.

There seem to be two possible ways of establishing work in applied mathematics within the Institute: (a) concentration of the work in the Department of Mathematics; and (b) dispersion of it in those scientific and technical departments which have major problems largely concerned with mathematics of an advanced character. In the latter case, the Department of Mathematics would serve as a central administrative department and professional meeting place for mathematicians interested in applications to problems of widely different character.

The Department should, if possible, plan a conference at the Institute in the summer of 1947 which would attract men who are interested in the development of applied mathematics and which would make better known the opportunities at M.I.T. for work in this field. The Committee feels that the Administration and the Corporation should support such an undertaking.

## Navy Award

THE United States Navy Department, through the chief of the Bureau of Ordnance, has conferred upon the Institute's High Voltage Laboratory, the Naval Ordnance Development Award. This honor has been granted in recognition of the distinguished service of the laboratory to the research and development of naval ordnance.

In addition to the certificate for distinguished service to naval ordnance development which was presented to the laboratory, each member of the staff was presented with a lapel emblem, a symbol of appreciation for his services. Those who received these awards were Professor Robert J. Van de Graaff, director of the High Voltage Laboratory, and Professor William W. Buechner, '35, associate director; Professors Herman Feshback, '42, and Walter C. Schumb; E. Alfred Burrill, Jr., '43, Lloyd R. McIntosh, Everett W. Nickerson, Anthony Sperduto, '42, and Wilton A. Tripp.

## Solar Energy Building

THE Institute has undertaken the construction of a small building to carry on experiments in the collection and utilization of the sun's energy to heat dwelling houses. A new approach is being investigated in which heat is to be collected and stored in walls forming a part of the south wall of the building. These walls may be either massive enough to store heat over short periods by a moderate rise in temperature, or they may contain a salt which melts at the normal temperature of domestic radiant heating panels and which stores heat in the process. To prevent heat loss to the outdoors, and at the same time permit absorption of solar energy, the walls are covered with double glass panes, and may also ultimately be provided with shades (*Concluded on page 352*)

# BUSINESS IN MOTION

## To our Colleagues in American Business . . .

There is an old and sound saying: "Be not the first by whom the new is tried, nor yet the last to cast the old aside." This expresses good common sense, especially in these days when so much that is new is being promised. But sometimes it is difficult to be properly cautious without running the risk of being too late. What is new is not necessarily better, nor what is old, either; the wise manufacturer demands proofs of both before making a decision.

Take the case of free-cutting copper, which Revere first began to supply during the war. Our metallurgical and practical tests proved to us that it would make possible faster and more accurate production of copper parts. Runs in customer plants confirmed our own results. Here is what one user wrote:

*This material seems to machine much better than our previous hard copper bar; it cuts off smoothly, takes a very nice thread, and does not clog the die.*

That company makes electrical parts that must be held to close tolerances, and must also have good electrical conductivity. Another company, making switch parts, reports:

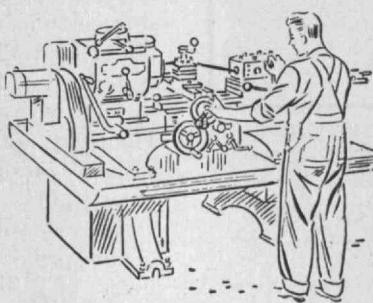
*Increased feed from 1½" to 6" per minute and do five at one time instead of two.*

And a manufacturer turning out disconnect studs says:

*Spindle speed increased from 924 to 1161 RPM and feed from .0065" to .0105" per spindle revolution. This re-*

sulted in a decrease in the time required to produce the part from .0063 hours to .0036 hours. Material was capable of faster machine speeds but machine was turning over at its maximum. Chips cleared freely, operator did not have to remove by hand.

You can see that this new free-cutting copper is a real contribution to the problem of keeping costs and prices down in certain products having machined copper parts. But that is not the only important thing to me about it. There was also the factor of proof, definite proof that the new material would fulfill the promises made for it, that it actually was not only new but definitely better.



Trial runs, comparative tests, proofs — from such things are correct decisions derived. It seems to me that today we all need not only a receptive mind, but also a demanding one. Every manufacturer owes it as a duty to himself and to the whole country to learn about new materials, and put them to the test. There are many new types of glass, for example, and of plastics, chemicals, drugs—the list is long. Many of these will do new jobs, or perform old ones better. And, of course, some may be no better than older materials. The important thing is to learn now what is new in your industry, demand proofs, put the promising things to the test, and adopt as quickly as possible those advances that prove they can lower costs, improve your product, increase its marketability. Only thus can we in American industry avoid the risk of being either too quick or too slow in making a decision.

*Donald Dallas*

President

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INSTITUTE GAZETTE

(Concluded from page 350)

automatically drawn at night when the sun is unable to provide solar energy for heating purposes.

This system is in contrast with the usual solar house which consists simply of a house with a large amount of glass in the south wall through which the sunshine heats the interior but in which no particular attempt is made to collect and store the excess energy of the sunlight, and to use it at night or when the sky is overcast. Other systems generally involve collectors placed in the roof and require some means of circulating the heat from that point to the rest of the building. In an effort to achieve maximum efficiency at minimum cost, the heat collectors in the M.I.T. experiment will be placed immediately behind glass walls on the side of the building most exposed to sunlight.

While it is perfectly feasible to arrange for solar heating of houses, the paramount question is whether such a system can be made as economical as conventional heating systems. In this combination system research is directed toward finding the least costly combination of heat collector and storage unit. It is expected that the research program being conducted will determine whether the solar energy system should be designed for fairly long storage of heat and complete freedom from use of conventional heating systems, or whether the most economic system should provide for no more than overnight heat storage, with an auxiliary heating system for sunless days. The location of the house will, of course, have enormous influence on this feature of the design. It is hoped that the experiments will permit appraisal of the idea for application in any solar climate.

This project is part of the program of research into means of utilizing solar energy undertaken as a consequence of a gift in 1938 from Godfrey L. Cabot, '81. The income from that gift is to be used to study methods of improving our use of solar energy. Among the first projects launched under this program was a house, built in 1939, to study the characteristics of solar collectors of the flat plate type similar to units in use in Florida and California. In this construction, water which was heated in flat plate collectors built into the roof was stored in a large tank in the basement and circulated as needed through radiators. The house was heated entirely by solar energy.\* Further work on the house and on other solar energy projects was interrupted by World War II.

The construction of the present small building witnesses the resumption of research into this phase of utilization of solar energy and is under direction of a Steering Committee consisting of Professors Lawrence B. Anderson, '30, School of Architecture and Planning, Albert G. H. Dietz, '32, Department of Building Engineering and Construction, and Hoyt C. Hottel, '24, Department of Chemical Engineering. Dr. Maria Telkes, Department of Metallurgy, is a consultant on the project, and Paul W. Witherell, '40, Department of Building Engineering and Construction, is carrying on the actual research.

\* Results were published in the *Transactions of the American Society of Engineers*, 1941.

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## TELEVISION—RETROSPECT AND PROSPECT

(Concluded from page 336)

Entertainment is an equally legitimate function. There are times in the lives of all of us when the watching of a good play, motion picture, or sports event will answer our needs better than any lecture demonstration, however instructive.

An account of the probable future role of television would not be complete without some reference to its function in industry. Here its primary application is likely to be the surveillance of processes which, for one reason or another, are not readily accessible to human beings. The obstacle may simply be distance. Thus the gauges and indicators of a series of widely spaced automatic substations could readily be watched by a single operator on a set of television receivers in a central station at a convenient location. In other cases the most favorable point of observation may be physically inaccessible or a place of great danger. There have been several applications of this type in the recent past. The classical example is, perhaps, the observation of the atomic bomb explosions and their effects at Bikini. Here numerous television cameras were set up to make possible the immediate viewing of the evolution of the explosion from a number of exposed locations. This experience points to the increased importance of television equipment for the protection of personnel as the industrial use of atomic power becomes more widespread.

In conclusion, I feel justified in stating that the effort spent in developing television has not only had many of the inherent compensations of any research program per-

sistently carried out, but has released a constructive force in our lives which may play a vital role in years to come. It is my earnest hope that my faith in television may not be disappointed and that you may come to share my conviction.

## MAIL RETURNS

(Concluded from page 322)

However, this is only the beginning. The indexing must be far more detailed than that of an abstracting journal or we leave the student with an ever increasing mass of material to winnow for no great increase in the amount of wheat. Also, to be really useful, indexing done today must enable one to locate the fact that he does not find out he needs until day after tomorrow. More broadly, an index should help one find a fact of whose existence he is unaware.

*Lincoln, Mass.*

### Extrapolations Questioned

FROM JOHN E. BURCHARD, '23:

I am very glad that Dr. Blake has raised the question of the extrapolation of growth curves which has been the basis on which Dr. Rider and others have gone forward to their conclusions. I have myself steadily questioned these extrapolations and thought I had made that clear in my article. What Dr. Blake has said will be very helpful when it is carried, as carried it will be, to my colleagues in the library world.

I should suppose that punch cards might be a real asset in the resolution of the synonym problem which is not only serious in biology but also, for example, in organic chemistry. Though the use of the card to take care of the synonyms or other classification questions in addition to separation of knowledge would inevitably reduce the number of combinations possible in the separation, it might be well to pay such a price on one condition — can the biologists or the organic chemists or others who have these nomenclature difficulties undertake to correlate their synonyms.

*Cambridge 39, Mass.*

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## A STUDY OF MAN EMBRACING ERROR

(Continued from page 347)

manner, and then photographed it. The head was then dissected by students, and when the skull became available Dr. Krogman turned it over to a sculptress, Miss Mary Jane McCue, together with the data relating to age, sex, and race, a table of average tissue thicknesses based on the heads of 20 male Oceanic Negroes, and a table of average cephalo facial sizes and proportions in American Negro males. Miss McCue, who had received training in anatomy and physical anthropology, then proceeded to sculpt the tissues over the skull.<sup>16</sup> The resulting restoration was, according to Dr. Krogman, "recognizable as that of the subject chosen." Miss McCue said: "At first glance, in comparing the photos of the head and of the bust, one would hesitate to say that they resembled one another." That seems to be the general verdict of those who see the photographs.

On the whole, the measurements between the head and the bust were very close. This one would expect, for certainly there is some resemblance between the deceased subject and his post-mortem bust. There are differences which we need not consider here. In the Negro there are such more or less constant features, such as kinky hair, thickish lips, broad nose, and small ears, upon which to rely. I think it would be possible to make some recognizable reconstructions on some skulls from Negro cadas-

<sup>16</sup> Miss McCue has described in some detail the methods she followed. See the *FBI Law Enforcement Bulletin* referred to above.

vers, but not on most. I am convinced that recognizable reconstructions would be impossible in the vast majority of whites. Certainly one could not expect that a close likeness to a person's appearance during life could be established from the skull alone.

The face of the cadaver provides an expressionless appearance to which many other cadavers may bear a fair resemblance, an appearance, by the way, which may very little resemble what the person actually looked like during life. Hence the difficulties which close relatives have often experienced in identifying a body after the lapse of a little time.

### Dangers of Overenthusiasm

Omitting size and expression of the eyes, the expression of the face is perhaps something that may never be achieved, and possibly is even unnecessary for the purposes of identification. In whites, the form and color of hair, size and form of lips, shape of nose, eyebrows, and hairline, distribution of subcutaneous fat, and a good many other soft-tissue characters, vary considerably. These bear little or no relation to the skull beneath, and it is precisely these features that give the person his unique appearance. How then can these features be reconstructed in a single person? Accurate reconstructions are not impossible, but, considering the kind of variables involved, they are highly improbable. Further experiments of the kind conducted by Dr. Krogman will finally settle this question.

While the prejudices of an earlier day were directed toward keeping man young, those of our own time are

(Continued on page 358)

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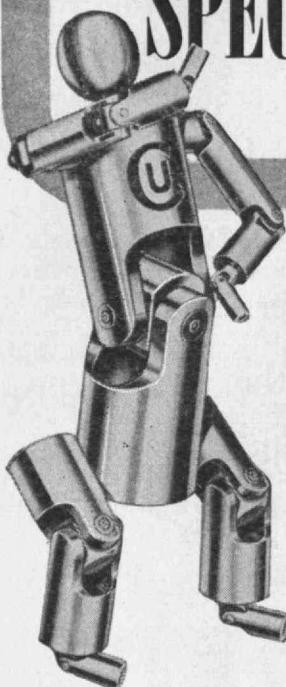
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## A STUDY OF MAN EMBRACING ERROR

(Continued from page 356)

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pitched in an opposite direction — toward making him as old as possible. Every discoverer of a skull hopes that his find will prove to be that of a prehistoric man. It is a worthy hope to entertain, and it is being more often realized than many of us ever expected would be possible. It is a hope to encourage, but it is one which must be held with caution. The surface of the earth has barely been scratched for the remains of prehistoric man. Let it be scratched often, hopefully, and with enthusiasm, but not with too much enthusiasm.

As illustrative of the dangers of overenthusiasm in prehistoric research — overenthusiasm which has led even the most distinguished authorities astray — are the interpretations which have been given to the Talgai and the Cohuna skulls, both from Australia.

The Talgai skull, much crushed and distorted, was found on the Darling Downs, Queensland, in 1884, but was not described until 1918. In that year Dr. S. A. Smith described it<sup>17</sup> as a very primitive ancestral representative of the Australian race. What impressed Dr. Smith most was the apparently enormous size of the palate. Indeed, it was chiefly upon this feature that its claim to antiquity was based. Most authorities agreed. But recently Dr. Milo Hellman,<sup>18</sup> the distinguished student of the human dentition, has made an ingenious reconstruction of the palate which proves beyond doubt that the palate was not larger than that of the average Australian aboriginal of today. Hence, the claim to antiquity on morphological grounds for the Talgai skull can no longer be maintained.

### Mistaken Identity

The Cohuna skull was found in 1925 at Cohuna, on the Murray River, Victoria, and is now circulating in "the literature," through no fault of its own, as another early ancestor of the Australian aborigines. The manner in which this skull crept into print should be a lesson to the unwary. When discovered, the skull was heavily coated with mineral incrustations. Some of this covering was removed, but not all. Sir Colin Mackenzie, Director of the Australian Institute of Anatomy, mistook the adhering mineral incrustation for bone. He made a tracing along the middle line of the skull, and this, together with some measurements, he sent to Sir Arthur Keith in London. With nothing more than this to go on, Sir Arthur expressed the opinion<sup>19</sup> that: "Taking it all and all, the Cohuna skull — with the exception of the Java and Peking specimens, and perhaps of Piltdown — represents the most primitive form known to us."

Alas, when the incrustations were removed, the Cohuna skull stood revealed in all its pristine beauty as one all of whose characters fall well within the range of those of the modern Australian aboriginal!

(Continued on page 360)

<sup>17</sup> S. A. Smith, "The Fossil Human Skull Found at Talgai, Queensland," *Philosophical Transactions of the Royal Society, London*, **208**: 351-389 (1918).

<sup>18</sup> Milo Hellman, "The Form of the Talgai Palate," *American Journal of Physical Anthropology*, **19**:1-17 (1934).

<sup>19</sup> Sir Arthur Keith, *New Discoveries Relating to the Antiquity of Man*, London and New York, 1931, pages 304-310.



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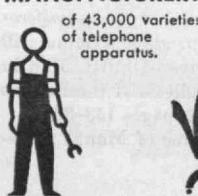
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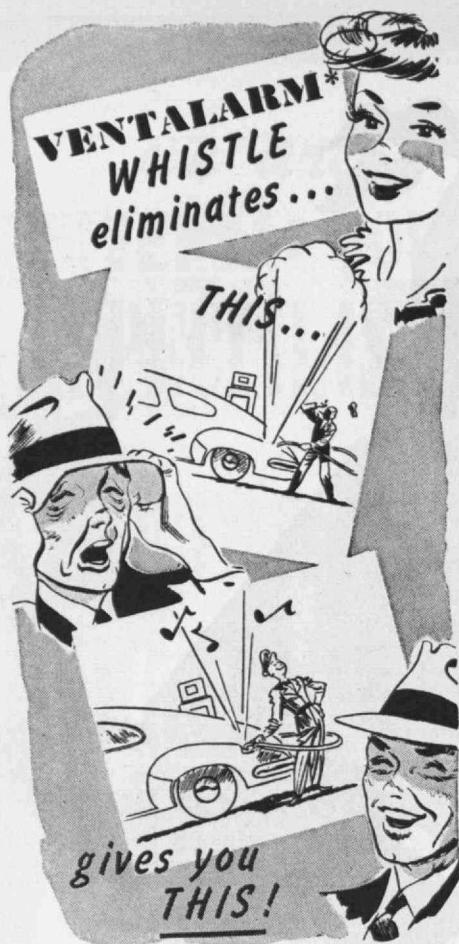


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## A STUDY OF MAN EMBRACING ERROR

(Continued from page 358)

During the first decade of this century, the description of the fossil ancestors of man was undertaken on a mass-production basis by Professor Fiorino Ameghino of Buenos Aires, Argentina.<sup>20</sup> In the course of a few years Professor Ameghino described more than a dozen alleged representatives of Tertiary and Quaternary man in South America, including such grandiosely named forms as *Homo caputinclinatus*, *Homo sinemento*, *Homo pampaeus*, *Diprothomo platensis*, and *Tetraprothomo argentinus*.

#### A Cat Grins

Professor Ameghino claimed great antiquity for these five groups of prehistoric man, describing *Homo pampaeus*, in particular, as "the most ancient representative of the genus *Homo* . . . of which we now possess the skull."

The Professor's reports were epoch-making, if true. Representatives of the American Bureau of Ethnology were therefore sent to South America to examine the skeletal remains and sites from which they had been recovered. In every case the verdict was the same: The skulls were those of American Indians of the recent period and had absolutely no claim to antiquity of any kind.

*Tetraprothomo* was represented by a single vertebra (the atlas), and a thigh bone (the femur). The first proved to be that of a relatively modern Indian, and the second, the thigh bone of a fossil cat! Nothing but the grin on the face of the long-vanished Argentine cat remained of Professor Ameghino's claim that its thigh bone once graced the muscular lower extremity of an ancient precursor of man.

#### A Tale of Tailless Apes

Among Professor Ameghino's massive failures must be numbered his attempts to endow South America with the fossil remains of anthropoid apes. The skull of a platyrhine monkey, *Homunculus patagonicus*, is as near as Ameghino ever got to an anthropoid ape, which is a very long distance indeed. But the attempt to find anthropoid apes in South America dies hard. As recently as 1929, the alleged discovery of living anthropoid apes on that continent received world-wide publicity.

It appears that in 1917 while travelling in the Motilones districts of Venezuela and Colombia, Dr. Francis de Loys,<sup>21</sup> a French geologist, and his party were suddenly attacked by two great tailless apes. The female was shot dead, the male was wounded but escaped. The body of the dead animal was said to weigh 115 pounds and to have a height of five feet, two inches. The jaws contained 32 teeth, the number typical for the Old World Primates. The discovery of this new ape was first given to the world

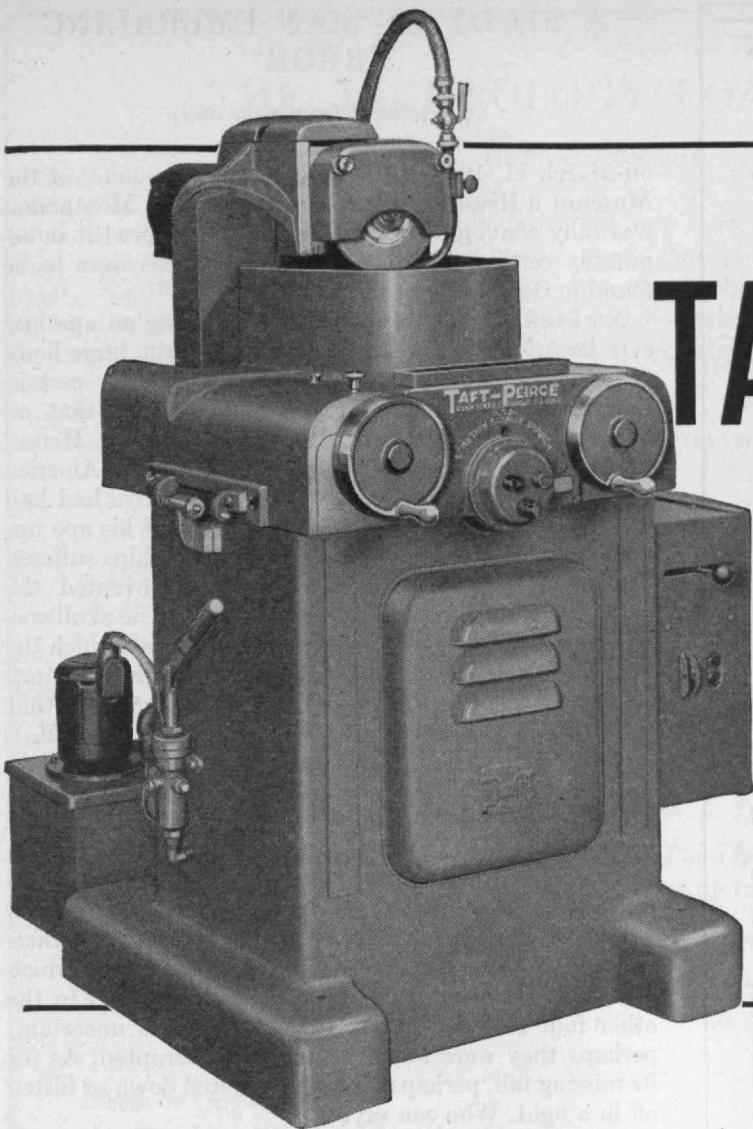
(Concluded on page 362)

<sup>20</sup> Fiorino Ameghino, *Contribucion al conocimiento de los mamiferos fosiles*, 1889. A full account and examination of Ameghino's claims will be found in Aleš Hrdlicka, "The Skeletal Remains of Early Man in South America," *Early Man in South America*, Bulletin of the Bureau of American Ethnology, No. 52, Washington, 1912, pages 153-395.

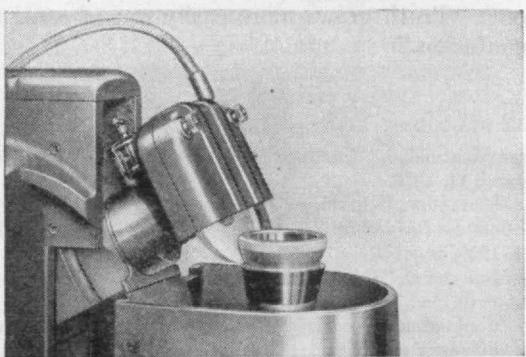
<sup>21</sup> Francis de Loys, "A Gap Filled in the Pedigree of Man?" *Illustrated London News*, June 15, 1929.

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## A STUDY OF MAN EMBRACING ERROR

(Concluded from page 360)

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on March 11, 1929, by Dr. George Montandon <sup>22</sup> of the Muséum d'Histoire Naturelle of Paris. Dr. Montandon was fully convinced that the evidence rendered it indisputably certain that living anthropoid apes were to be found in South America.

No fossil remains of anything resembling an ape had ever been found anywhere in America, and a large body of evidence of various kinds made it virtually certain that none ever would, for the simple reason that no anthropoid apes ever existed in the New World. Hence, the announcement of living apes in South America created something of a sensation. Dr. de Loys had had the good judgment to make a photograph of his ape immediately after it had been shot. The hardships suffered by Dr. de Loys' party unfortunately prevented the preservation of the bones of the specimen. The skull was reported to have been "dissolved" by the salt which the expedition's cook had kept in it! But although that story had to be taken with a very considerable grain of that substance, the giant Primate with 32 teeth, no tail, a great height and weight, strongly suggested an anthropoid ape. The published photograph of this ape,<sup>23</sup> seated on a box, showed an animal with stubs where its thumbs should have been, a nose with nostrils separated by a wide septum and flaring and deflected in an outward and upward direction. All these are traits of a monkey belonging to the genus Ateles, or spider monkeys. Furthermore, the spider monkeys inhabit the region in which Dr. de Loys' ape was shot. What had happened to the other four teeth it should have possessed is uncertain; perhaps they were impacted or even unerupted. As for its missing tail, perhaps it had been salted down or bitten off in a fight. Who can say?

Possibly Dr. Montandon's own strange views embraced in the theory which he called "oogenism," namely, the view that the anthropoid apes and man had originated independently at different times over the whole of the earth, had something to do with his vigorous championing of this monkey's claim to anthropoid status.

Perhaps some of the facts recounted in this article will serve to convince the reader that there can be no place for prejudice in science. Prejudices are wasteful of effort, confusing of thought, and retardative of progress. The scientific mind is the critically open mind, and even if, occasionally, it falls into error, let us remember Bacon's statement: "Truth grows more easily out of error than out of confusion."

<sup>22</sup> George Montandon, "Un Singe Actuel en Amérique," *Revue Scientifique*, March 11, 1929.

George Montandon, "Un singe d'apparence anthropoïde en Amérique du Sud," *Comptes Rendus des Séances de l'Académie des Sciences*, Paris, March 11, 1929, pages 815-817.

George Montandon, "Découverte d'un Singe d'apparence anthropoïde en Amérique du Sud," *L'Anthropologie*, 39:137-141 (1929).

George Montandon, "Un Singe Anthropoïde Actuel en Amérique," *Revue Scientifique*, Paris, May 11, 1929, pages 268-269.

<sup>23</sup> For a critical examination of Montandon's and de Loys' claims see M. F. Ashley Montagu, "The Discovery of a New Anthropoid in South America?" *The Scientific Monthly*, 29:275-279 (1929).

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| ITEMS OF OUTGO   | <i>At Dec. 31<br/>1946</i> | <i>At Dec. 31<br/>1945</i> | <i>Net Changes<br/>during 1946</i> |
|--|----------------------------|----------------------------|------------------------------------|
| Number of men receiving loans . . . . .  | 2647                       | 2608                       | +39                                |
| Total amount loaned . . . . .  | \$1,918,740.75             | \$1,895,273.75             | +\$23,467.00                       |
| Average per capita loan . . . . .  | \$724.91                   | \$726.71                   | -\$1.80                            |
| <hr/>  |                            |                            |                                    |
| ITEMS OF INCOME  |                            |                            |                                    |
| Number of men whose indebtedness has been completely discharged . . . . .                | 1922                       | 1762                       | +160                               |
| Principal repayments <i>in advance</i> . . . . .   | \$540,875.27               | \$498,207.37               | +\$42,667.90                       |
| Other principal repayments . . . . .   | \$979,983.79               | \$924,662.50               | +\$55,321.29                       |
| Total principal repayments . . . . .   | <u>\$1,520,859.06</u>      | <u>\$1,422,869.87</u>      | <u>+\$97,989.19</u>                |
| Total principal matured, considering “advance repayments” as matured when paid . . . . . | \$1,556,277.56             | \$1,460,825.98             | +\$95,451.58                       |
| <hr/>  |                            |                            |                                    |
| Collection Ratio, i.e. percentage of total maturities paid . . . . .                     | 97.8%                      | 97.4%                      | +0.4%                              |
| Matured principal in arrears . . . . .   | \$29,792.19                | \$32,762.12                | -\$2,969.93                        |
| Actual “written off” accounts . . . . .  | \$5,626.31                 | \$5,193.99                 | +\$432.32                          |
| Total maturities unpaid . . . . .  | \$35,418.50                | \$37,956.11                | -\$2,537.61                        |
| Interest received . . . . .  | \$208,239.87               | \$199,235.84               | +\$9,004.03                        |
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## HUMAN RELATIONS IN INDUSTRIAL CIVILIZATION

(Concluded from page 344)

has produced a new culture. At the same time, it has failed to achieve an organic synthesis. By scattering its appeals, it has failed to give them depth in time and experience. Like the machine on which it depends, its life organization is impersonal, detached, specialized.

### Reversal of Trend?

Whether or not it is possible to reverse the trends in community life, which industrial metropolitanism has set in motion, is difficult to say. To be sure, straws in the wind are blowing in another direction, for a flight from the industrial city seems to have begun and to have made fair progress in the last quarter of a century. It appears to be still too early to discover clearly what the next step will be.

Accelerated by such examples of decentralized power as the gasoline engine and the electric transmission lines, industries and individuals are beginning to find places more favorable for growth in the smaller communities of the metropolitan fringe. A reversal of the centripetal city of industrialism appears in the broad, regional views of city plan commissions. A new architecture, the values of which are natural, seems a part of this orientation. The literature of a Frank Lloyd Wright or a Ralph Borsodi is a beautiful and stirring plea for a revolt against industrial metropolitanism. A hard-headed economic realism which recognizes and is beginning to respect the physical and economic limits of metropolitan concentration is perhaps as convincing an indication of a new way of thinking about the modern community as any. Certainly the burden of human pathologies — crime, mental disease, vice, poverty, family disorganization — which industrial urbanism is piling on the shoulders of metropolitan bureaucracy is another indication pointing to the need for change. Educators would add to this testimony their earnest conviction that a more favorable environment for human growth and for satisfactory and wholesome group living must be found.

In brief, there is a sense, no longer weak and tentative but tragic, that the whole texture of modern man's means and meanings is in considerable jeopardy so long as the industrial city in the form and spirit of the past is maintained as the matrix of his multitudinous and differentiated relationships.

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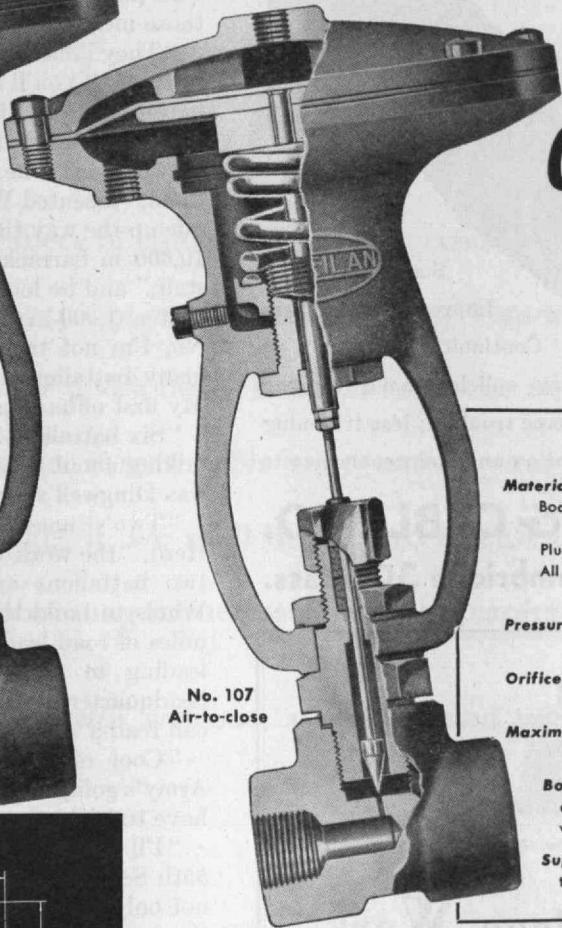
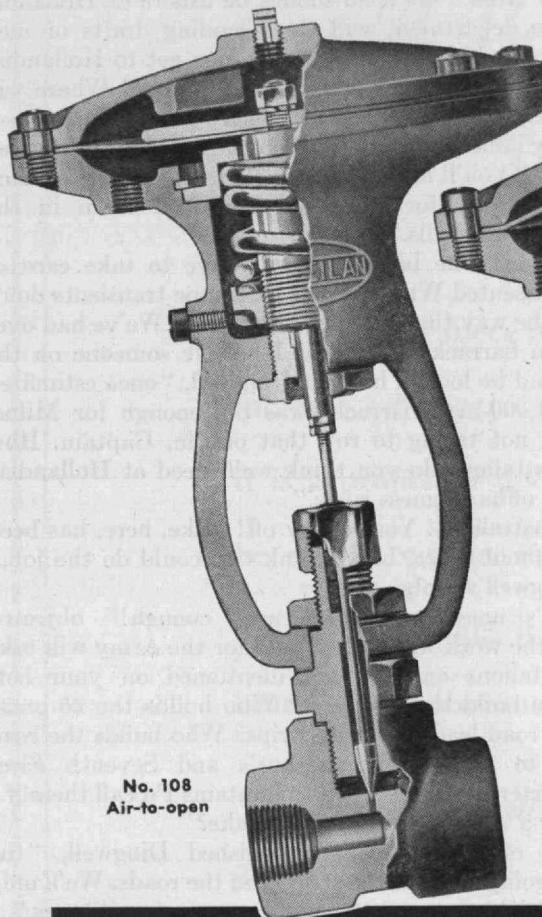
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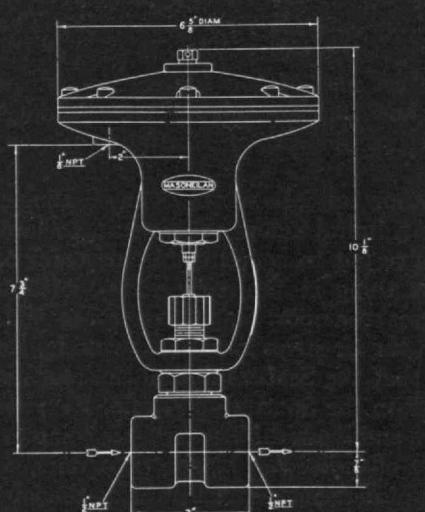
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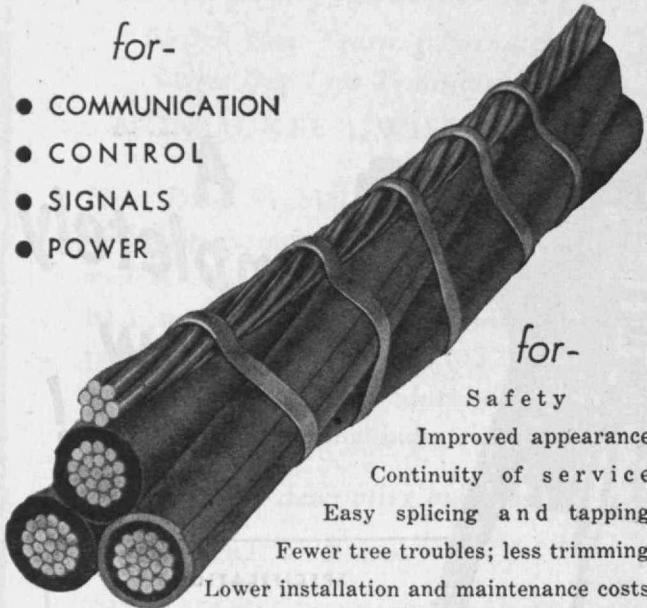
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## STEPPING STONES TO VICTORY

(Continued from page 340)

galley. You'll have to hold off starting work on the receiving barracks, though, until you've finished enough of the hospital Quonsets to accommodate 200 patients."

"Where'll we put transients in the meantime?" objected Herd, "we'll no sooner be ashore at Hollandia than the department will start sending drafts of men there to join ships, and when the men get to Hollandia, God knows where the ships will have gone! Where will those men sleep? In the mud? Where will they eat?"

"They'll have to be billeted on the Seabees," answered Shanley. "You'll have to set up some extra tents at each battalion camp for transients and feed them in the battalion mess halls."

"Oh, yes! The battalions will have to take care of them," assented Wright, "but let's hope transients don't pile up the way they have at Milne Bay. We've had over 10,000 in barracks there and I believe someone on the staff," and he looked hard at Dingwell, "once estimated that a 1,000-man barracks was big enough for Milne. No, I'm not trying to rub that one in, Captain. How many battalions do you think we'll need at Hollandia? My first offhand guess is six."

"Six battalions! You're way off! Mike, here, has been talking about three, but I think two could do the job," was Dingwell's reply.

"Two's not enough, not near enough!" objected Herd, "the work we'll have to do for the Army will take two battalions and it's not mentioned on your list! Who's to build the air strips? Who builds the 25 or 30 miles of road leading to the strips? Who builds the road leading to General MacArthur's and Seventh Fleet headquarters in those 'hills' (mountains I'd call them if I can read a map) overlooking the lake?"

"Cool off! Cool off!" admonished Dingwell, "the Army's going to build the strips and the roads. We'll only have to build the roads through areas assigned to us."

"I'll believe it when I see it," countered Wright, "the 55th Seabees built the strip at Merauke. The 60th built not only the strip and 35 miles of road at Woodlark but the toughest end of the Finschhafen strip. And now the 40th and 78th are helping Army engineers with the Manus strips instead of starting work on the Fleet base."

"We know all about that," was Dingwell's reply, "and the Admiral knows all about it, too, and approves of it. We've got to concentrate our forces on the most important thing in the early phases of a job, and in many cases the most important thing is to help the Army get the air strips and roads working. But don't get the idea that the Seabees did all the roads and the air-strip work in the Southwest Pacific! Ever see Moresby, Dobodura and Nadzab? The Army is going to build a big base at Hollandia, far bigger than ours, and they're going to put in enough engineers to do the job! All I want to know is how many Seabees you'll need to put in these units!" and he tapped the list.

"O.K." agreed Wright, "we'll give you an estimate in a couple of days but in the meantime I'd suggest we think in terms of four battalions: one to be divided between the headquarters job and the Tanamehra tank farm; two

(Continued on page 368)

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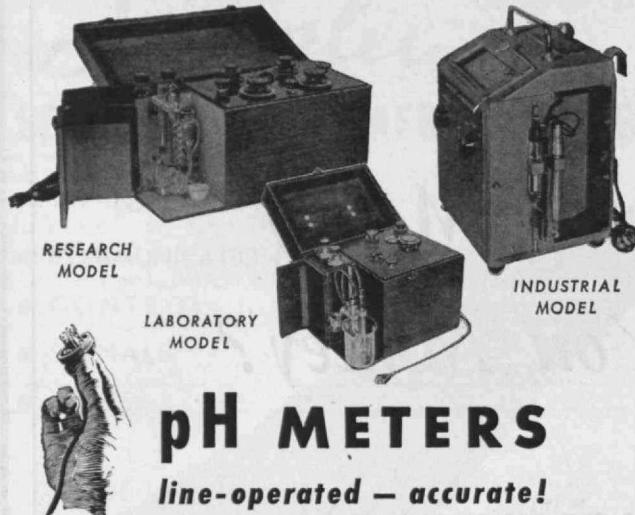
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## STEPPING STONES TO VICTORY

(Continued from page 366)

for the supply depot and hospital; and the fourth for the ship repair unit and miscellaneous jobs. Suppose we set up Tate's 24th Regiment for the job which includes the 102d, 113th, 119th, and 122d Seabees — four battalions of 1,100 men each?"

"Looks like too many men to me," grumbled Dingwell, "but what do you say, Mike? Shall we agree to that as a tentative setup until they've completed a real estimate of what's needed?"

"By all means," answered Shanley, "let's plan on enough men this time and not have another Milne Bay where three companies struggled for months with a job to which we'd have assigned six battalions if we had had them. Milne only started to get out of the mud when Hewett's 91st Seabees got there in November and nothing at Milne has been finished when it was needed. I'm all for an adequate force at Hollandia. We'll need some Special Seabees there to do the stevedoring, too. What outfit do you suggest?"

"Half the 19th Special from Finschhafen."

"Fine, make it half the 19th," agreed Dingwell. "Of course, all this is tentative and strictly hush-hush. As soon as you have roughed out a real estimate of the men, equipment, and materials needed at Hollandia, bring it over to my office. We'll discuss it with Captain Crawford and the admiral will send a formal directive to the commander of the Service Forces after we've got approval from general headquarters."

The formal directive for the construction of a new base usually took the form of a "secret" or "top secret" letter stating the location of the base, listing its principal components and giving the date upon which each would have to be substantially finished and ready for service. The sources of the major items of material and equipment required for the construction of the base under consideration, and the identity of the Construction Battalion units to be assigned to the project, would also be specified. The receipt of the directive by the Service Force would be followed by conferences at which innumerable details were settled.

Perhaps the most important of these were the allocation of Seabee units to urgent projects of interest to both the Army and Navy during the assault and early phases of an operation, and the location of sites.

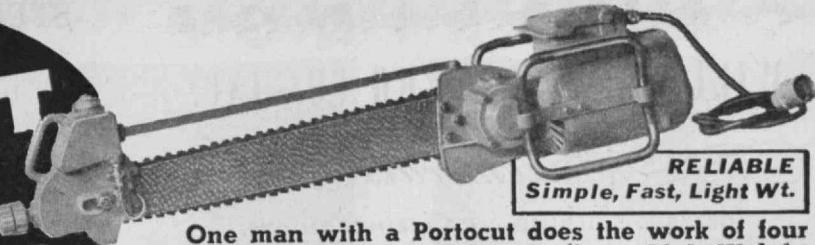
The location of sites was always a difficult problem as topographic and hydrographic information on an area still in the hands of the Japanese was usually meager and often unreliable. Using the best available maps, which were generally the product of aerial photographic reconnaissance, the land, air, and naval forces would prepare preliminary plans showing proposed locations of the units they intended to install at a new base and the area required for each.

These plans would be submitted to General MacArthur's chief engineer, Major General Casey, at a conference at which all three Forces presented their reasons for requesting the sites they had selected. It usually developed that all three Forces felt they had the best of reasons for requesting all the really good sites, but compromises would finally be made and a tentative

(Continued on page 370)

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## STEPPING STONES TO VICTORY

(Continued from page 368)

allocation of sites would be approved by general headquarters.

In the meantime, orders would have been placed with the Navy Department by the commander of the Seventh Fleet for such necessary major units as additional construction battalions or large functional components — ship repair units, hospitals, supply depots, or large radio stations — as might have to be brought out to the Southwest Pacific from the United States for the proposed base. The Construction Forces, through the commander of the Service Forces, would similarly order miscellaneous building materials, such as lumber, piping, plumbing supplies, wiring, and so on. Shipping for these units and materials had to be arranged with the chief regulating officer at general headquarters, and it was not always easy to convince that much harassed member of General MacArthur's staff of the wisdom of allocating to the Construction Forces of the Seventh Fleet a sufficient proportion of the limited tonnage available to the Southwest Pacific Command.

Transportation would next be arranged for the Seabees that were to accompany the assault forces. LST's would be used, if available, for carrying forward the advance echelon of Seabees moving to a new job, but shortage of LST's frequently made it necessary to move construction battalions in Liberty ships. This enormously complicated the problem of getting ashore. Unloading a Liberty ship by means of lighters assembled from NL pontoons is a back-breaking and tedious process, especially when much of the cargo consists of heavy pieces of construction equipment which tax the capacity of the ship's cargo booms.

The first days ashore at a new base were always tough ones. At the best, there were days of unbelievably hard work in unbelievably deep mud with unbelievable swarms of mosquitoes standing by to see that the weary got no sleep. At the worst, the first days ashore could be almost beyond endurance. Conditions of the latter kind were described by Commander J. C. Tate, Officer-in-Charge of the 24th Naval Construction Regiment, in the following words quoted from his report on the first few days he spent ashore at Hollandia with a reconnaissance party.

"The beach," Commander Tate reported, "was a narrow strip of white sand with a mangrove swamp behind it. The Japanese had abandoned great stacks of supplies, ammunition, and fuel on the beach as our forces stormed ashore. The cargoes of 11 LST's, all heavily loaded with supplies and equipment for Army units, were stacked on the beach. The Army was building roads back from the beach, but combat activities slowed the work and but little progress had been made by the end of the second day. That night a single Jap bomber swooped in, dropped his bombs on the fuel and ammunition, and then made a strafing run on the beach. The loss from those bombs was heavy. The fire raged for several days with bombs and ammunition going off intermittently. Men were being killed and injured all around. Large pieces of red-hot bomb fragments landed within arm's length of us, but luckily none of our party was injured."

(Continued on page 372)

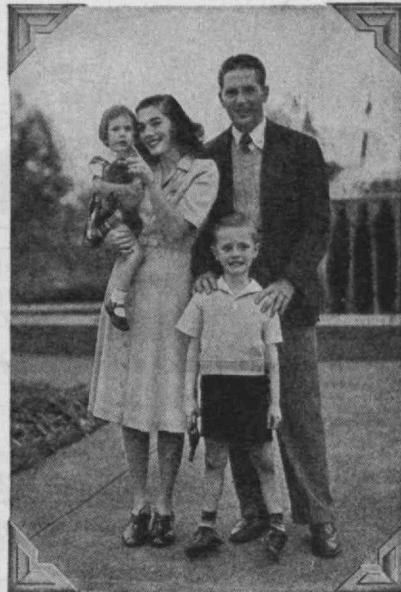
## ALL THINGS HUMAN CHANGE...



1929



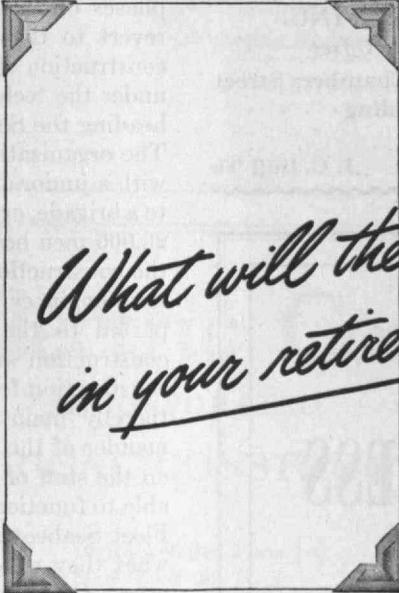
1933



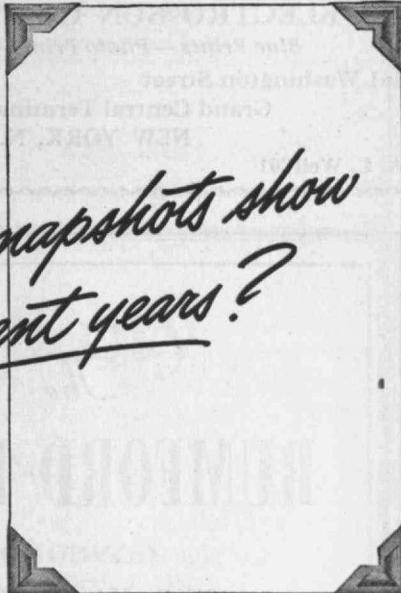
1940



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# STEPPING STONES TO VICTORY

(Continued from page 370)

Although it was not unusual for Seabees to have to deal with snipers during the early phases of a new construction job, only one battalion in the Southwest Pacific had to put down the shovel and pick up the gun as a unit. This was the 40th Battalion, the men of which acquitted themselves so commendably as infantrymen during their first days at Manus that the 40th was given a Presidential Citation recommended by General MacArthur.

During their first days ashore, in an area that was being taken from the enemy, the Seabees would devote their energies to the construction of roads, piers, air strips, and other work urgently needed by both the Army and Navy. During this phase of their activity, the officer-in-charge of the Seabees reported to the task force engineer who was held responsible by the commander of the entire operation for the effective co-ordination of all construction activities during its assault and combat phases. The task force engineer was usually an officer of the Army Engineers, but in at least one case an officer of the Civil Engineer Corps of the Navy served as a task force engineer. With the termination of the combat phases of the operation, control of the Seabees would revert to the Navy and they would proceed with the construction of naval facilities. This work would be done under the technical direction of the civil engineer officer heading the Seabee organization assigned to the project. The organization might be anything from a detachment with a junior officer in charge, if the job were a small one, to a brigade, or even two or three brigades totaling 15,000-20,000 men headed by a commodore, if the project were the construction of a fleet base. In any event, the senior civil engineer officer who headed the organization reported to the commanding officer of the base under construction and not directly to the commander of the construction forces. Unity of command at each base was thereby maintained, and at the same time, the commander of the Construction Forces, through his position on the staff of the commander of the Service Force, was able to function as the "type commander" of all Seventh Fleet Seabees and retain a fairly satisfactory control of what they were doing throughout the Southwest Pacific area. Occasionally, friction developed between the officer-in-charge of the Seabees at a new base and its commanding officer, especially if the former were a bit obtuse in adjusting himself to naval and military customs and if the latter proved to be an "amateur engineer." In no case, however, was such friction permitted to delay seriously the completion of a project.

The actual construction of one of the larger bases very naturally involved many types of engineering. At a fleet base such as Manus, there would first be work for experienced surveyors, topographers, and hydrographers who furnished the data used in laying out the entire base and effecting necessary changes and adjustments in the tentative site allocations made before our forces landed. Then there was work for designers in many engineering specialties. Highway engineers were needed to plan the air strips and the road system which might well comprise more than 100 miles of macadam pavement. Sanitary engineers designed the water supply, purification, and

(Concluded on page 374)



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(Concluded from page 372)

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distribution systems which, at Manus, were capable of delivering in excess of 4,000,000 gallons of filtered water per day to the base and to ships lying there. In the construction of the rapid filters at this base, which were designed by Lieutenant Commander L. G. Phillips of the 5th Regiment, wood-stave tanks were utilized for filter chambers while bolted steel oil tanks formed the raw and clear water reservoirs. Chemical feeding and mixing devices and control valves were improvised from available odds and ends with the assistance of the well-equipped machine shops of the ship repair unit. The filter plants at Manus, and two similar but smaller ones built at Milne Bay from designs by Commander Earl Kelly of the 12th Naval Construction Regiment, did much to safeguard the health of personnel and minimize unnecessary loads on the hospitals of the bases. Architects, and engineers with architectural experience, were, of course, needed to plan the hospitals, groups of office buildings, shop buildings, storehouses, recreational centers, and personnel buildings of a big base. Structural engineers were needed to design and check the many deviations from standard methods of erecting and the use of prefabricated units which material shortages forced the Seabees to adopt.

Finally, experienced construction engineers, mechanics, craftsmen, and laborers were needed to realize the plans of the designers. Men of many types were needed; men who knew not only how to operate, but also how to maintain and repair bulldozers, excavators, cranes, and pile drivers; men who could coax trucks through mud deeper than any truck was ever intended to run in; men who could simultaneously fell trees and deal with Japanese snipers; men who could haul logs to one of the portable saw mills with which construction battalions were equipped; men who could convert the logs into structural timber; men who could build wharves and assemble huge floating dry docks of a new and hitherto untried type; men who could, and would, befriend the residents of a native village by devoting their precious spare time to repairing the organ of the village church; men who could build a huge naval base, such as Manus, in less than six months! The job demanded enlisted men and reserve officers of a character and ability unique in the annals of military engineering. In short — Seabees!

It is difficult to tell any part of the story of the Seabees without making it appear that, to the narrator, they were more than a service organization. Their work was, of course, secondary, and was of importance only insofar as it supported combat units. There can be no doubt, however, that to the fighting forces which brought about the defeat of Japan, the naval bases constructed by the Seabees were, in fact, stepping stones to victory.

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Today the Institute finds itself with an unexcelled faculty and staff and the largest and most promising student body in its history. Never before has it had such opportunities and potentialities for making far-reaching contributions to the education of our youth and to the advancement of science and engineering. Nor are these opportunities which can be overlooked, for in reality they are obligations which must be assumed in the interest of our national welfare.

Adequately to fulfill its role in the years ahead, the Institute needs additional capital resources — needs them now. There must be an immediate expansion in plant to provide for new and enlarged teaching and research programs; living and recreational facilities, woefully inadequate before the war, are desperately needed for a stabilized student enrollment, larger by almost one-third; and an endowment with a constantly decreasing yield must be materially strengthened. These are essentials if the Institute is to continue to operate at maximum effectiveness, to maintain that position of leadership which is demanded of it. No other course is thinkable.

The history of the M.I.T. Alumni Fund is one of continued growth. We can well be proud of its progress to date. In seven years it has tripled in size. And yet, even now, the total of \$185,000, almost \$18.50 per contributor, represents an average gift per alumnus of only \$5.00. Surely this is a figure which can and should be appreciably bettered. No direct comparison with other alumni funds can be made without the application of a number of factors, but it is at least worthy of mention that Dartmouth alumni, a body only two-thirds the size of ours, last year gave \$416,000 to their college, an average of \$31.50 per contributor and some \$17.00 per alumnus.

In this year ahead, a year of vital importance to M.I.T., is it too much to ask that we set our sights on that goal embodied in the "Chicago Plan," a contribution of one-half of one per cent of salary? Many Alumni give much more. If all should find it possible to meet or exceed that figure, the Institute's financial worries would be substantially reduced. It is within your power to make this an actuality. Will you give it the serious consideration that it deserves?

# M.I.T. MEN AT WAR

Up to March 12 over 9,686 Institute Alumni, including 48 Admirals, 14 Commodores, and 101 Generals, were reported as being in the active naval or military service of the United Nations. Listed below are the names of the Alumni who have served in the High Command.

## U.S.A.

|      |   |
|------|---|
| 1907 | Fredendall, Lloyd R., <i>Lt. Gen.</i>         |
|      | *Godfrey, Stuart C., <i>Brig. Gen.</i>        |
| 1909 | Blood, Kenneth T., <i>Maj. Gen.</i>           |
| 1910 | Nichols, William R., <i>Brig. Gen.</i>        |
| 1911 | Kenney, George C., <i>Gen.</i>                |
|      | Spalding, Sidney P., <i>Maj. Gen.</i>         |
|      | Weeks, Lawrence B., <i>Brig. Gen.</i>         |
| 1912 | Montgomery, Edward, <i>Brig. Gen.</i>         |
| 1913 | Gardner, Fulton Q. C., <i>Maj. Gen.</i>       |
|      | Jones, Albert M., <i>Maj. Gen.</i>            |
| 1914 | Green, Thomas H., <i>Maj. Gen.</i>            |
|      | Waitt, Alden H., <i>Maj. Gen.</i>             |
|      | Wood, John E., <i>Brig. Gen.</i>              |
| 1915 | Gillespie, Alexander G., <i>Brig. Gen.</i>    |
|      | McIntyre, James D., <i>Brig. Gen.</i>         |
| 1916 | Boatwright, Walter P., <i>Brig. Gen.</i>      |
|      | *Harms, Henry W., <i>Brig. Gen.</i>           |
|      | *Hyde, James F. C., <i>Brig. Gen.</i>         |
| 1917 | Groves, Leslie R., Jr., <i>Maj. Gen.</i>      |
|      | Hegenberger, Albert F., <i>Maj. Gen.</i>      |
|      | Kingman, Allen F., <i>Brig. Gen.</i>          |
|      | Williford, Forrest E., <i>Brig. Gen.</i>      |
| 1919 | Hill, Edmund W., <i>Maj. Gen.</i>             |
| 1920 | Broadshaw, Aaron, Jr., <i>Brig. Gen.</i>      |
|      | Case, Rolland W., <i>Brig. Gen.</i>           |
|      | Colton, Roger B., <i>Maj. Gen.</i>            |
|      | Van Volkenburgh, Robert H., <i>Brig. Gen.</i> |
|      | Whitten, Lyman P., <i>Brig. Gen.</i>          |
| 1921 | Allen, Harvey C., <i>Brig. Gen.</i>           |
|      | Baylies, James E., <i>Brig. Gen.</i>          |
|      | Carroll, Franklin O., <i>Brig. Gen.</i>       |
|      | Donovan, Richard, <i>Maj. Gen.</i>            |
|      | Hume, Edgar E., <i>Brig. Gen.</i>             |
|      | Hutchings, Henry, Jr., <i>Brig. Gen.</i>      |
|      | Loper, Herbert B., <i>Brig. Gen.</i>          |
|      | Lull, George F., <i>Maj. Gen.</i>             |
|      | Moses, Raymond G., <i>Brig. Gen.</i>          |
|      | Murray, Maxwell, <i>Maj. Gen.</i>             |
|      | Newman, James B., Jr., <i>Brig. Gen.</i>      |
|      | Neyland, Robert R., Jr., <i>Brig. Gen.</i>    |
|      | Noce, Daniel, <i>Maj. Gen.</i>                |
|      | Quinton, Alfred B., Jr., <i>Brig. Gen.</i>    |
|      | Scott, Stanley L., <i>Maj. Gen.</i>           |
|      | Shingler, Don G., <i>Brig. Gen.</i>           |
|      | Worsham, Ludson D., <i>Brig. Gen.</i>         |
| 1922 | Browning, Albert J., <i>Brig. Gen.</i>        |
|      | Dunkelberg, Wilbur E., <i>Brig. Gen.</i>      |
|      | Heavey, William F., <i>Brig. Gen.</i>         |
|      | Hoge, William M., <i>Maj. Gen.</i>            |
|      | Howard, Clinton W., <i>Brig. Gen.</i>         |
|      | Johns, Dwight F., <i>Brig. Gen.</i>           |
|      | Styer, Wilhelm D., <i>Lt. Gen.</i>            |
| 1923 | Chavin, Raphael S., <i>Brig. Gen.</i>         |
|      | Christmas, John K., <i>Brig. Gen.</i>         |
|      | Coffey, John W., <i>Brig. Gen.</i>            |
|      | Covell, William E. R., <i>Maj. Gen.</i>       |
|      | Hinds, John H., <i>Brig. Gen.</i>             |
|      | Nisley, Harold A., <i>Brig. Gen.</i>          |
|      | Randall, Russell E., <i>Brig. Gen.</i>        |
|      | Reimel, Stewart E., <i>Brig. Gen.</i>         |
|      | Safford, Hermon F., <i>Brig. Gen.</i>         |

★ Killed in Action

|      |  |
|------|--|
| 1924 | Sayler, Henry B., <i>Maj. Gen.</i>         |
|      | Shugg, Roland P., <i>Brig. Gen.</i>        |
|      | Doolittle, James H., <i>Lt. Gen.</i>       |
|      | Henry, Stephen G., <i>Maj. Gen.</i>        |
|      | McSherry, Frank J., <i>Brig. Gen.</i>      |
|      | Smith, Edward W., <i>Brig. Gen.</i>        |
|      | Wells, Gordon M., <i>Brig. Gen.</i>        |
| 1925 | *Franks, John B., <i>Brig. Gen.</i>        |
|      | Holman, Jonathan L., <i>Brig. Gen.</i>     |
|      | Kraus, Walter F., <i>Maj. Gen.</i>         |
|      | Sorensen, Edgar P., <i>Brig. Gen.</i>      |
|      | Stokes, John H., Jr., <i>Brig. Gen.</i>    |
| 1926 | Danielson, Wilmot A., <i>Brig. Gen.</i>    |
| 1927 | Ryan, Cornelius E., <i>Brig. Gen.</i>      |
| 1928 | Badger, George M., <i>Brig. Gen.</i>       |
|      | Bradley, Joseph S., <i>Brig. Gen.</i>      |
|      | Gardner, Grandison, <i>Brig. Gen.</i>      |
|      | Hauseman, David N., <i>Brig. Gen.</i>      |
|      | Niblo, Urban, <i>Brig. Gen.</i>            |
| 1929 | Esposito, Vincent J., <i>Brig. Gen.</i>    |
|      | Rush, Hugo P., <i>Brig. Gen.</i>           |
| 1930 | Flory, Lester D., <i>Brig. Gen.</i>        |
|      | Gailey, Charles K., Jr., <i>Brig. Gen.</i> |
|      | Schulgen, George F., <i>Brig. Gen.</i>     |
| 1931 | Loucks, Charles E., <i>Brig. Gen.</i>      |
| 1932 | Kessler, Alfred A., Jr., <i>Brig. Gen.</i> |
|      | Merrill, Frank D., <i>Maj. Gen.</i>        |
|      | Meyer, Henry J. D., <i>Brig. Gen.</i>      |
| 1933 | Kabrich, William C., <i>Brig. Gen.</i>     |
| 1934 | ★Andersen, James R., <i>g Bri. Gen.</i>    |
| 1935 | Barber, Edward, <i>Brig. Gen.</i>          |
|      | Besson, Frank S., Jr., <i>Brig. Gen.</i>   |
| 1936 | Beebe, Royden E., Jr., <i>Brig. Gen.</i>   |
| 1937 | Lacey, Julius K., <i>Brig. Gen.</i>        |
| 1940 | Moore, Ernest, <i>Brig. Gen.</i>           |
|      | Maxwell, Alfred R., <i>Brig. Gen.</i>      |

## U.S.N.

|      |  |
|------|--|
| 1898 | Swasey, A. Loring, <i>Commo.</i>           |
| 1901 | *Whitman, Ralph, <i>Rear Adm.</i>          |
| 1905 | Furer, Julius A., <i>Rear Adm.</i>         |
|      | Willson, Russell, <i>Vice Adm.</i>         |
| 1906 | Fisher, Charles W., <i>Rear Adm.</i>       |
| 1907 | Land, Emory S., <i>Vice Adm.</i>           |
|      | Rydén, Roy W., <i>Rear Adm.</i>            |
|      | Van Keuren, Alexander H., <i>Rear Adm.</i> |
| 1909 | Howard, Herbert S., <i>Rear Adm.</i>       |
| 1910 | Chantry, Allan J., Jr., <i>Rear Adm.</i>   |
| 1911 | de Florez, Luis, <i>Rear Adm.</i>          |
| 1914 | Richey, Thomas B., <i>Rear Adm.</i>        |
| 1915 | Brand, Charles L., <i>Rear Adm.</i>        |
|      | Smith, William H., <i>Rear Adm.</i>        |
| 1917 | Angas, W. Mack, <i>Commo.</i>              |
|      | Carroll, Penn L., <i>Commo.</i>            |
|      | Crisp, Frederick G., <i>Rear Adm.</i>      |
|      | Pace, Ernest M., Jr., <i>Rear Adm.</i>     |
|      | Sherman, Forrest P., <i>Vice Adm.</i>      |
|      | Sullivan, William A., <i>Commo.</i>        |
| 1918 | Kleinschmidt, Robert V., <i>Commo.</i>     |
| 1920 | Cochrane, Edward L., <i>Vice Adm.</i>      |

\* Died or Killed in Service

|      |   |
|------|---|
| 1921 | Hayler, Robert W., <i>Rear Adm.</i>           |
|      | Miles, Arthur C., <i>Rear Adm.</i>            |
|      | Pennoyer, Frederick W., Jr., <i>Rear Adm.</i> |
|      | Royce, Donald, <i>Rear Adm.</i>               |
|      | Fowler, Joseph W., <i>Rear Adm.</i>           |
|      | Oster, Henry R., <i>Rear Adm.</i>             |
|      | Richardson, Lawrence B., <i>Rear Adm.</i>     |
|      | *Vickery, Howard L., <i>Vice Adm.</i>         |
| 1922 | Beatty, Frank E., <i>Rear Adm.</i>            |
|      | Carlson, Milton O., <i>Commo.</i>             |
|      | Kitts, Willard A., 3d, <i>Adm.</i>            |
|      | Nicholson, Charles A., <i>Rear Adm.</i>       |
|      | Stevens, Leslie C., <i>Rear Adm.</i>          |
|      | Wynkoop, Thomas P., <i>Rear Adm.</i>          |
| 1923 | Baumeister, Werner W., <i>Commo.</i>          |
|      | *Mullinx, Henry M., <i>Rear Adm.</i>          |
|      | Nibecker, Paul B., <i>Rear Adm.</i>           |
|      | Noble, Albert, <i>Rear Adm.</i>               |
|      | Sylvester, Evander W., <i>Rear Adm.</i>       |
|      | Watt, Richard M., Jr., <i>Commo.</i>          |
|      | Wheelock, Charles D., <i>Rear Adm.</i>        |
| 1924 | Carson, John H., <i>Rear Adm.</i>             |
|      | Fahrion, Frank G., <i>Rear Adm.</i>           |
|      | France, Albert F., <i>Rear Adm.</i>           |
|      | Jacobson, Jacob H., <i>Commo.</i>             |
|      | Pihl, Paul E., <i>Commo.</i>                  |
|      | *Royal, Forrest B., <i>Rear Adm.</i>          |
|      | Stump, Felix B., <i>Rear Adm.</i>             |
| 1925 | Durgin, Calvin T., <i>Rear Adm.</i>           |
|      | Lonnquest, Theodore C., <i>Rear Adm.</i>      |
|      | Schoeffel, Malcolm F., <i>Rear Adm.</i>       |
|      | Pride, Alfred M., <i>Rear Adm.</i>            |
| 1926 | Wellings, Augustus J., <i>Commo.</i>          |
| 1928 | Schade, Henry A., <i>Commo.</i>               |
| 1929 | *Kiefer, Dixie, <i>Commo.</i>                 |
|      | Seitz, George A., <i>Commo.</i>               |
| 1932 | Combs, Thomas S., <i>Rear Adm.</i>            |
| 1937 | Bowen, Harold G., Jr., <i>Rear Adm.</i>       |

## U.S.C.G.

1913 Smith, Edward H., *Rear Adm.*

## U.S.M.C.

1925 Miller, Ivan W., *Brig. Gen.*

## CANADA

1913 Young, James V., *Maj. Gen.*

## CHINA

|      |                                      |
|------|--------------------------------------|
| 1915 | Mar, Pellian T. C., <i>Rear Adm.</i> |
| 1916 | Wong, Tsoo, <i>Lt. Gen.</i>          |
| 1926 | Chu, Shih M., <i>Lt. Gen.</i>        |

(11)

# ALUMNI AND OFFICERS IN THE NEWS

## Room at the Top

¶ For WILLIAM B. BOGGS '04, winner of the International Nickel Company's medal for distinguished service in the mining and metallurgical industry in Canada.

¶ For WARREN K. LEWIS '05, on whom Princeton University has conferred the honorary degree of doctor of engineering.

¶ For CLARENCE D. HOWE '07, awarded the United States Medal for Merit in recognition of services in the joint war effort.

¶ For EMORY S. LAND '07, Vice Admiral, U.S.N., recipient of the honorary degree of doctor of laws from Columbia University.

¶ For FRANK W. CALDWELL '12, given an honorary fellowship by the Institute of Aeronautical Sciences.

¶ For VANNEVAR BUSH '16, winner of the Hoover Medal for 1946 for outstanding public service.

¶ For KENNETH S. M. DAVIDSON '19, awarded the Wetherill Medal of the Franklin Institute for his contributions to the improved design of ships through experiments on ship hull models.

¶ For ROBERT P. RUSSELL '22, announced as the winner of the Cadman Memorial Medal for outstanding research on petroleum, to be awarded on June 4, when Mr. Russell will deliver the second Cadman Memorial Lecture at the Royal Institution in London on "Progress in Petroleum Research."

¶ For DONALD F. WARNER '22 and ALEC FISHER '26, honored by General Electric with Charles A. Coffin awards for accomplishment of unusual merit during the four war years.

¶ For PALMER C. PUTNAM '23, presented with the Medal for Merit for his wartime work on ordnance devices in the Office of Scientific Research and Development.

¶ For CHARLES A. THOMAS '24, named as the second recipient of the Industrial Research Institute Medal, given for outstanding contribution in the field of industrial research.

¶ For JAY ZEAMER, JR., '40, Lieutenant Colonel, A.U.S., one of the airmen featured in *Warriors with Wings*, by Philip McKee, to be published this month by the Thomas Y. Crowell Company.

¶ For ALVAR AALTO, staff, on whom Princeton University has conferred the honorary degree of doctor of fine arts.

¶ For HENRY R. HITCHCOCK, staff,

elected an honorary corresponding member of the Royal Institute of British Architects in London. Mr. Hitchcock has also been made a director of the College Art Association.

## On the Escalator

¶ SANFORD E. THOMPSON '88, made a fellow of the American Society of Mechanical Engineers.

¶ FREDERICK A. HUNNEWELL '97, Commander, U.S.C.G., and EDWARD D. MERRILL '09, appointed members of the Sesquicentennial Committee to organize a celebration in 1950 of the establishment of the Federal Government in Washington.

¶ EVERETT S. COLDWELL '15, elected executive vice-president of the firm of Ford, Bacon and Davis, Inc.

¶ WILLIAM J. BARRETT '16, made third vice-president of the Metropolitan Life Insurance Company of New York.

¶ LEWIS W. DOUGLAS '17, appointed as ambassador to Great Britain.

¶ JOHN T. NORTON '18, named chairman of the national education committee, American Society for Metals.

¶ HOWARD H. DAWES '23, arrangements chairman, and LUCIUS E. PACKARD '35, general chairman, of the New England regional meeting of the Institute of Radio Engineers to be held at the Hotel Continental in Cambridge on Saturday, May 17. The full-day session will include technical papers on communications and exhibits of recent electronics apparatus.

¶ JULIUS A. STRATTON '23, ROLAND F. BEERS '28, and President COMPTON, heading respectively the committees on electronics, on geophysical sciences, and on guided missiles, of the Army-Navy Joint Research and Development Board.

¶ THOMAS P. COOGAN '24, elected regional vice-president of the National Association of Home Builders.

¶ GEORGE F. CHAPLINE '25, appointed general manager of the Ranger Aircraft Engine, a division of the Fairchild Engine and Airplane Corporation.

¶ GEORGE E. WHITE '29, chosen as manager of the General Foods coffee plant in Hoboken, N.J.

¶ EDMUND Q. SYLVESTER '34, elected a director and vice-president of the Griffin Wheel Company, a principal subsidiary of the American Steel Foundries Company of Chicago.

¶ JAMES McCORMACK, JR., '37, appointed by the United States Atomic Energy Commission to the position of director of its division of military application.

## From the Press

¶ By KUO CHOU LI '21, as editor with foreword, *American Diplomacy in the Far East, 1942-43*, published by the author, 1946.

¶ By JOHN R. DAESSEN '22, *Galvanizing Handbook*, Reinhold Publishing Corporation, 1947.

¶ By ERIC F. HODGINS '22, *Mr. Blandings Builds His Dream House*, a Book-of-the-Month Club selection, Simon and Schuster, 1946.

¶ By ALBERT G. H. DIETZ '32, *Dwelling House Construction*, first of a series of ten titles on building construction, D. Van Nostrand Company, 1946.

## DEATHS

\* Mentioned in class notes.

¶ LLOYD G. LEWIS '82, April 18, 1946.

¶ JOHN G. FAXON '88, February 4.

¶ FREDERICK L. HOPKINS '89, March 4.

¶ WILLIAM L. SMITH '89, February 21.

¶ MORTON CARLISLE '90, March 10.

¶ CABOT J. MORSE '90, August 21.\*

¶ SCOTT A. WEBBER '92, February 25, 1945.

¶ WALTER P. WHITE '92, February 7, 1946.

¶ JOHN W. LOGAN '93, January 28.\*

¶ ALBERT G. ZIMMERMAN '94, February 20.

¶ FRED W. DRAPER '95, January 30.

¶ LEWIS H. TAPPAN '96, March 9.

¶ HAROLD B. WOOD '01, February 13.

¶ ERNEST W. PELTON '03, January 16.

¶ HARRY V. DOHERTY '04, October 4.\*

¶ VIOLA TURNER NELSON '06, December 10.

¶ WALTER S. RODMAN '09, December 31.\*

¶ GEORGE T. SOUTHGATE '10, November 8.\*

¶ BURKETT D. NEWTON '16, July 28, 1945.\*

¶ DONALD B. SANGER '20, February 10.

¶ GEORGE H. DYER '22, February 4.

¶ CARL J. GRIP '22, January 13.

¶ GLEASON W. KENRICK '22, October 29.\*

¶ HENRY SHORE '24, February 5.\*

¶ WALTER SELIGMAN '27, August 19, 1945.\*

¶ KIRON C. ROY '29, October 11, 1945.

¶ JACQUES P. BRILLON '32, June 14.

¶ WILLIAM C. KABRICH '33, January 27.

¶ BERTRAM F. NAGY '44, June 16, 1945.\*

¶ DEFOREST W. MEEHLEIB '46, December 10.\*

# NEWS FROM THE CLUBS AND CLASSES

## CLUB NOTES

### American Physical Society

The annual meeting of the Society was held at Columbia University in New York City, with concurrent meetings of the American Association of Physics Teachers, on Thursday, Friday, and Saturday, January 30 and 31 and February 1. Among the papers given by Technology Alumni and staff were the following: (invited) "An Instrument for Measuring Particle Diameters and Constructing Histograms from Electron Micrographs," by E. E. Hanson and John H. Daniel '40, and "Frequency Response Characteristics of Dielectric Materials and Their Interpretation," by Arthur R. von Hippel, staff; Herbert B. Callen '45, and William B. Westphal '46; (contributed) "The Transmission of Energy from Radiation on Silicon Crystals," by Frederick C. Brown '26; "An Investigation of Thick Target X-Ray Production in the Range from 1250 to 2350 kv.," by W. W. Buechner '35, Robert J. Van de Graaff, staff; Ernest A. Burrill, Jr., '43, and Anthony Sperduto '42; "Disintegration Scheme of the 21-Minute Isomer of Mn<sup>92</sup>," by Robert K. Osborne '42 and Martin Deutsch '37; "Microwave Studies of Dielectric Properties of Arcs," by Donald E. Kerr '37, Sanborn C. Brown '45, and Walter P. Kern '41; "The Decay Scheme of Cs<sup>134</sup>," by Kai Siegbahn and Martin Deutsch '37; "A High Performance Photo-Galvanometer Feedback Amplifier," by Demetrius G. Jelatis '38; "Production of Cosmic-Ray Stars," by Eugene Gross, Shuichi Kusaka '38, and George Snow; "Pulsed Ultrasonic Measurements on Some Single Crystals," by Hillard B. Huntington '39; "Complex Permeability of Magnetic Iron at 200 Mc as a Function of Polarizing Field" and "A Method to Measure Complex Permeabilities of Metals at UHF," by George T. Rado '39, M. H. Johnson, and M. Maloof; "Ultrasonic Absorption and Velocity Measurements in Liquid Helium," by John R. Pellam '40, and Charles F. Squire, staff; "High Frequency Probe Measurements of Electron Attachment and Ambipolar Diffusion," by Manfred A. Biondi '45, and Sanborn C. Brown '45; "On the Heitler Theory of Radiation Damping," by John M. Blatt, staff; "A Study of the Barium Silicate Interface of Oxide Coated Cathodes," by Albert S. Eisenstein, staff; "The Mass Distribution of Fission Fragments," by David H. Frisch, staff; "Some Remarks on the Limitations of Linearized Theory of Supersonic Flow Around Cones," by Zdenek Kopal, staff; and "On the Theory of 'Second Sound' in Helium II," by Laszlo Tisza, staff.

### Atlanta Alumni Association of the M.I.T.

The Association entertained Paul M. Chalmers, Assistant Director of Admissions at Technology, and Mrs. Chalmers during

their recent visit to Atlanta. The meeting, more of a round-table discussion, was held at the suburban home of our genial member, Charles A. Smith, one of the "survivors" of the Class of '99. A goodly number of the Alumni and their wives were present, and our host served a remarkable old-fashioned New England dinner with all the trimmings. Professor Chalmers discussed in detail recent activities at Technology, including qualifications for admission and difficulties in the rehabilitation of hundreds of returned soldiers who had formerly been drafted from their classrooms for war duty.

At the regular monthly meeting on January 3, Leon B. Locklin '28 was elected president, and Lawrie H. Turner '99 was re-elected secretary. Our retiring President, Clifford S. Read '18, had served in that capacity for five years. Among Alumni recently settled in the Atlanta district who have become members of the Association are the following: Russell J. Brooke '33, Elberto Gonzales-Rubio Burgos '35, Robert J. Caldwell '36, Richard J. Hammerstrom '42, Edward J. Marnock '30, George H. Schumacher '29, Bruce E. Sherrill '28, and John Thorpe '35. — LAWRIE H. TURNER '99, Secretary, 625 Sherwood Road, Northeast, Atlanta, Ga.

### M.I.T. Association of Baltimore

Dean Moreland '07 attended the luncheon meeting on March 3 at the Engineers Club in Baltimore, as a guest of Ralph L. Thomas '13. He gave an informal talk commenting on affairs at the Institute. The Alumni present were P. H. Chase '09, C. B. Conway '24, A. G. Denbin '21, J. C. Fisher '17, J. C. Gibbs '37, C. V. Moberg '38, E. L. Moreland '07, W. W. Pagon '07, G. W. Spaulding '21, R. L. Thomas '13, Bartow van Ness, Jr., '22, and J. A. Walls '99. — GEORGE J. GROSS '25, Secretary, 4317 Walther Avenue, Baltimore 14, Md.

### M.I.T. Association of Cleveland

A goodly number of undergraduates were on hand Saturday, December 28, at the annual holiday luncheon sponsored by the Cleveland Alumni and held, as has become more or less traditional, at Cleveland's Mid-Day Club. After an excellent repast, Doc Smith '42 called on several guests to bring the Alumni up to date on affairs at the Institute. Bill Geist '49 accounted for sports in general; Ford Miskell '49 covered the activities of the swimming team; Bill Zimmerman '48 made a few comments on Tech Show and plans for the first postwar Open House. Taylor Craig '49 told us about the proposed Technology radio station. Doc Smith then relieved the undergraduates of further responsibility for the entertainment by adjourning the formalities until another season.

I should like to urge all Alumni finding themselves in the greater Cleveland area over the Christmas holidays to attend this

meeting. It is a close approximation of a round-trip ticket back to Tech. — CHARLES H. SMITH, JR., '42, Secretary, Steel Improvement and Forge Company, 970 East 64th Street, Cleveland 14, Ohio.

### M.I.T. Club of Central Ohio

The Club is active, although there have not been many occasions when our activities have seemed of sufficient interest to the alumni body as a whole to report them to The Review. So far as we have been able definitely to confirm the names on our list, 36 Alumni reside in Columbus and 10 in surrounding towns within our territory. These are people from whom we have had a definite response to notices sent out within the last six or eight months. We have regular monthly luncheon meetings throughout the year at the University Club, 40 South Third Street in Columbus, at noon, on the first Wednesday of each month. In addition, we try at least once during the winter to have an evening meeting to which the wives of members are invited and during the summer or fall one picnic in which the families may be included.

The monthly luncheon meetings are quite informal but seem to be thoroughly enjoyed by those who attend them. We commonly have a group of from six to ten. This year they have been better attended than for the last few years during the war, and we expect this upward trend to continue with the increasing number of Alumni moving into our territory. Twenty to 25 Alumni come out to the annual dinner, which is usually held when we find that someone from M.I.T. is in this vicinity and can stop off to talk to us about Institute affairs or on some topic of current interest in the field of science or technology. Having thus far had no such visitor, we have not yet called an evening meeting during the current winter season, but plan to hold one soon. — CLARENCE E. RICHARDS '18, Secretary, American Education Press, Inc., 400 South Front Street, Columbus, Ohio.

### Detroit M.I.T. Association

An enjoyable and well-attended dinner meeting was held at the University Club on November 26. The well-known war correspondent, S. L. A. Marshall, was our guest speaker. Colonel Marshall gave us a most informative picture of the activities and functions of the War History Section, calling attention to the consequences such information will have on future tactics and enlivening the account with many anecdotes and personal experiences.

In accordance with the suggestion of the Alumni Association, the new name above was adopted at this meeting. New officers elected are Douglas B. Martin '25, President, Francis H. Rutherford '28, Vice-president, L. Willis Bugbee, Jr., '21, Treasurer, and John T. Cronin '17, Secretary. Adam K. Stricker, Jr., '29 of 1227 Bishop Road,

Grosse Pointe Park 30, Mich., is now one of our honorary secretaries, succeeding Allyne C. Litchfield '17, who has rendered fine service in this capacity for many years. Our other honorary secretary here is Charles T. Ellis '17, 1377 Harvard Road, Grosse Pointe Park 30, Mich.

The dinner at the University Club on February 5 gave an unusually large gathering of the members of the Association an opportunity to meet a group of Institute seniors from the Department of Business and Engineering Administration who were here inspecting business and manufacturing facilities. The occasion was highlighted by G. W. Trichel in a very interesting review of "Rockets and Controlled Missiles." Mr. Trichel, a West Pointer who did post-graduate work at the Institute with the Class of '35, was chief of the rocket development division of the Army Ordnance Department. His informative and timely discussions concluded with the showing of captured colored film of German experimental work in this field.

Among those present at the dinner were the following: C. B. Allen, Jr., '29, E. A. Ash '22, M. L. Ash, Jr., '26, Chesley Ayers '34, Joseph Bayser '39, A. E. Benson '26, R. G. Breck '44, B. B. Brewster '47, L. W. Bugbee '21, C. H. Burnham '22, W. van A. Clark, Jr., '42, W. S. Coleman, Jr., '46, A. H. Copeland, Jr., '38, J. T. Cronin '17, M. S. Dennett '11, E. F. Doten '19, H. S. Freeman '46, J. N. French '11, Franklin Fricker '25, C. L. Hall, Jr., '15, T. K. Hine '16, H. H. Kaw '22, D. R. Knox '27, B. S. Kingsbury '42, James le Grand '21, Knut Holt '47, J. E. Longyear '26, G. O. McCarten '19, M. E. McConnell '33, G. I. McNeill '27, A. A. Markus '47, K. A. Marshall '47, D. B. Martin '25, L. B. Moore '37, D. H. Parker '17, F. N. Phelps '13, E. D. Pratt '13, George Quisenberry '45, W. F. Rahles '34, B. Z. Ranan '47, C. C. Roden '44, J. P. Rosenberg '38, J. D. Rumsey '33, F. H. Rutherford '28, J. M. Scofield '41, A. K. Stricker, Jr., '29, R. D. Strout '39, D. L. Sutter '50, D. M. Sutter '26, O. P. Swope, Jr., '42, E. M. Tatman '39, G. W. Trichel '35, C. L. Tuller '12, J. J. Wagman '44, J. C. Webb '37, L. E. Williams '01, and C. S. Ricker '42. — JOHN T. CRONIN '17, Secretary, 198 Monterey Avenue, Highland Park 3, Mich.

### Technology Club of Hartford

A proposed revision of the constitution of the Club has been completed by a committee working under the chairmanship of Roger W. Davis '12 and will be submitted shortly to the Club membership for action.

Your Secretary notes with regret the passing of Ernest W. Pelton '03, President of the Club for the year 1911, who died at his home in New Britain in January of this year. Before his retirement a few years ago, Mr. Pelton was vice-president and general superintendent of the Stanley Works.

On January 29, forty-three members and guests of the Club met at "The Hedges" in New Britain. After an excellent roast-beef dinner, Fred Sehl, chemical engineer at the Aetna Casualty and Surety Company, assisted by George Whelpley, presented a very interesting and informative talk and demonstration on "Flash Fires and Dust Explosions." Mr. Sehl discussed explosions caused by wood flour, plastic powders, and

other finely divided substances, and outlined how their hazard may be reduced and the effect of explosion minimized. After stressing the dangers of overloaded circuits as causes of fires, Mr. Sehl turned to the field of spontaneous ignition. A lively question period followed his remarks.

Club members attending include the following: John W. Kittredge '94, Robert J. Ross '06, Malcolm G. Wight '06, George L. Mylchreest '10, Roger W. Davis '12, Arthur F. Peaslee '14, Edmund McK. Hayden '16, Norman J. Vile '16, Millard Knowlton '18, Andrew S. la Penta '22, William S. Wise '23, Lester C. Smith '25, Ferrari P. Ward '26, Otto B. Wiessner '26, Thomas D. Green '26, Robert W. Conly '26, Edward J. Wood '28, J. Henry L. Giles '29, Harold C. Plant '30, Arthur G. Russell '32, Winthrop F. Conant '33, Frank A. Clary, Jr., '33, Alexander J. Minkus '33, Ermano Garaventa '35, Oscar E. Eckblom '35, Louis J. Proulx, Jr. '36, Robert H. Roethlisberger '37, Franklin S. Atwater '38, Joseph R. Krenn, Jr., '38, William F. Pulver '39, James E. Fifield '40, and Tan-Chih Lu '44. — FRANKLIN S. ATWATER '38, Secretary, 109 Elbridge Road, New Britain, Conn.

### Indiana Association of the M.I.T.

The February 12th meeting was held at the Apex Grill, 129 East 16th Street. After the dinner, President Peabody '21 announced to the Club that Bob Wallace '27 was moving to Chicago to be with Diamond T. Elliott expressed the sentiments of us all when he told Bob he was very sorry to have him leave this Club and Indianapolis, and that in entering on his new work Bob would have the good wishes of the entire Club.

After the reading of the minutes of the last meeting, it was announced that the next one would be held on Monday, March 24, when H. E. Lobdell '17, Executive Vice-president of the Alumni Association, would be present and tell us of activities at the Institute. The place will be announced when the regular notices are sent out. As the annual election of officers for next year will be held on that occasion, President Peabody appointed a nominating committee consisting of T. G. Harvey '28, chairman, J. Lloyd Wayne '96, and Stanley Boyle '27.

The meeting was then turned over to Wayne. As the program was to be devoted to communication, before Lloyd introduced the speaker, he traced the development of the telephone from the time of its invention by Alexander Graham Bell to the present. He told several anecdotes gleaned during his long association with the Telephone Company. Harry R. Gruelle of the publicity department of the Indiana Bell Telephone Company was then introduced. He mentioned early problems of long-distance telephony and described events leading up to the use of vacuum tubes in long-distance circuits. He showed how changes in temperature in the carrier cables were compensated for. The use of sound waves for detecting submarines under water and the use of radar for locating surface ships and aeroplanes were described. Mr. Gruelle demonstrated how radar waves could be screened, bent, and focused. An excellent sound film was run, showing the practical

development and use of radar. The Club thanks Lloyd for providing such a timely and interesting program. The meeting adjourned at 10:00 P.M.

The following members were present: J. L. Wayne, 3d, '96, A. I. Franklin '98, H. S. Morse '03, J. H. Babbitt '17, E. G. Peabody '21, J. O. Beasley '22, P. V. Jewell '26, S. C. Boyle '27, R. C. Wallace '27, T. G. Harvey '28, Russell Fanning '30, G. W. Klumpp '30, and R. M. Poorman '45. Our guests were H. R. Gruelle and Guille Harvey. — JOHN H. BABBITT '17, Secretary, 3734 Carrollton Avenue, Indianapolis 5, Ind.

### M.I.T. Club of Southern California

James R. Killian, Jr., '26, Vice-president of the Institute, was guest speaker at our dinner meeting held at the Rodger Young Auditorium on November 8. In the absence of John B. Pitkin '37, President — Helmut W. Geyer '26 presided at the meeting and introduced his classmate, Dr. Killian, who spoke on "The Institute Today." He presented estimates of the man power shortage in engineering fields and discussed the problems of the Institute and other technical schools in attempting to eliminate this shortage. The interest stimulated by Dr. Killian resulted in a free discussion and expression of the need for better trained young graduates in the Southern California area.

Members present at the meeting were the following: M. A. Abel '41, R. L. Alder '37, B. W. Badenoch '39, W. W. Baldwin, Jr., '39, P. K. Bates '24, H. E. Beebe '10, R. W. Blake, Jr., '41, R. H. Boden '34, Z. M. Briggs '00, E. H. Burkart, Jr., '23, K. W. Comsey '39, G. M. Cunningham '27, G. L. Davenport, Jr., '06, R. G. Fife '40, J. W. Follin, Jr., '40, H. W. Geyer '26, Page Golsan '12, Page Golsan, Jr., '34, T. G. Gundelach '43, D. K. Hammell, Jr., '39, I. E. Hattis '34, R. W. Hunn, Jr., '28, K. C. Kingsley '23, Paul Kusnitz '24, H. B. Leslie '38, William Mellema '15, L. C. Miller '28, W. F. Mullen, Jr., '36, Harry Postal '25, J. J. Robson '32, W. A. Sangster '37, H. H. Strauss '38, R. B. Stringfield '15, E. V. Sumner, 4th, '41, G. K. Turner '45, F. L. von Brecht '27, R. E. Wagner '42, H. M. White '44, D. O. Wood '37, and S. D. Zemansky '37. — D. DONALD WEIR '38, Secretary, 1492 North Doheny Drive, Los Angeles 46, Calif.

### M.I.T. Club of South Florida

The Club began the new year with a dinner meeting at the Downtown Club in Miami, on February 4. Our Secretary, C. P. Thayer '23, was fortunate in securing John H. Clouse, dean of engineering in the recently organized engineering school at the University of Miami, as the speaker. In discussing the need for an engineering school here, Dean Clouse stated that the shortage of engineers, brought on by lack of enrollment during the war, is causing a large enrollment in engineering schools, especially by veterans. Many veterans who received their war training in Miami desire to return to attend the university and are asking for engineering courses. The four-year courses offered in the engineering school, in which the enrollment is about

five hundred, are electrical, mechanical, and industrial engineering, and engineering science, the latter providing a broad background in general engineering. Dean Clouse stressed the value of extensive training in calculus and basic science in all engineering education, not only for mental training but also for practical use of the knowledge itself when the engineer keeps "in training" and knows how to apply it. The South Florida area is to some extent dependent on tourist trade, and the opinion of Dean Clouse, shared by club members, is that it would be benefited by more applied science and engineering in numerous small and growing industries as well as in the field of untouched natural resources. Small business should be shown the profit in employing and training technical personnel who have adequate theoretical knowledge even though little practical experience in the particular business involved.

Before the talk by Dean Clouse, President Coogan '24 led a short business meeting and discussed coming meetings. Prompted by frequent inquiries from Alumni in the North regarding employment possibilities here, we have formed a placement committee consisting of C. P. Thayer '23, chairman, M. A. Baskin '34, and John Ostlund '35.

The enthusiastic turn-out included 22 members. In addition to the above-mentioned, the following were also present: F. S. Anderson '04, W. G. Anderson '41, R. S. Bush '37, P. W. Comstock '39, J. J. Dysart '33, S. P. Fosgate '24, H. R. Gamble '26, Foster Kennedy '30, A. B. Kononoff '29, M. N. Lipp '20, E. I. Mandell '21, R. L. O'Donovan '27, C. W. Orleman '31, D. D. Peene '29, Irving Peskoe '39, C. W. Swift '99, D. A. Werblin '36, and F. E. Zurwelle '20. A welcome guest was F. O. Clapp '99, who is visiting here from Rhode Island. — CLARENCE P. THAYER '23, *Secretary*, 4212 Northwest 6th Avenue, Miami, Fla. PAUL W. COMSTOCK '39, *Assistant Secretary*, 1145 Southwest Seventh Street, Miami, Fla.

### *Technology Club of New York*

The Club will hold its annual luncheon at the Engineers Club on Wednesday, February 26, for Technology men who are in attendance at the convention of the Technical Association of the Pulp and Paper Industry. R. G. Macdonald '22, Secretary of this organization, will be on hand to pass out good tidings and introductions, and we are looking forward to a good attendance. We shall have more details later. On March 5, we are looking forward to having our portly and genial Executive Vice-president of the Alumni, H. E. Lobdell '17, with us for the first spring dinner meeting of the Club at the Architectural League. The entire evening will be given over to Lobby, and he assures us that he has removed all the moth-eaten stories from his repertory. It now looks as if we should have a rush on that occasion, and I surely hope it will prove so.

We have seen few men other than Rock Hereford '24, who came to town from California, where he works with the Consolidated Steel Corporation in Los Angeles, and those met at the luncheon table, where Phil Warner '92, Jack Fruit '02, Joe Littlefield '17, Al Glassett '20, Sam Reynolds '22, Dale Spoor '22, and Jack Zim-

merman '23 appear quite frequently. Ray Rundlett '22 complains of the need for a wheelbarrow to haul his sheet around with him (*the Ladies' Home Journal*), and your humble Secretary knows very well what he means. Brother Dandrow '22 has been contributing heavily to the Pullman Company of late, but when he polishes off a few more handsome contracts, we shall see more of him. Again let me invite any of the visiting firemen to get in touch with me when in the city — for almost anything but hotel rooms and theater tickets. I'll try to help you even on these, if I can. — WILLIAM W. QUARLES '24, *Secretary*, McGraw-Hill Publishing Company, 330 West 42d Street, New York 18, N.Y.

### *M.I.T. Club of Philadelphia*

Club members were saddened to learn that John Wood Logan '93 had died suddenly on January 28, while attending the annual meeting of the Philadelphia Country Club. For many years he had been associated with the Alan Wood Steel Company of Conshohocken, Pa., and in September he had retired from his duties as secretary and treasurer of that company and its subsidiaries. He was a member of both the American Society of Mechanical Engineers and the American Institute of Mining and Metallurgical Engineers. Further details of his life may be found in the class notes. He is survived by his wife, the former Rachel Miller Thomas; a daughter, Mrs. Harry W. Need of Norfolk, Va.; and two sons, John W. Logan, Jr., '20, who is associated with the Union Switch and Signal Company of Swissvale, Pa., and George T. Logan '29, who is with the Philadelphia Electric Company. The Club extends its sympathy to the Logan family in its bereavement.

There will soon be a meeting of the placement committee at which will be considered the merits of continuing this service as a regular feature of our Club. Much help has been given Tech men attempting to make their postwar connections in this region, and the problems of proper placement in the years ahead offer a field for continuing service by the Club.

The Technical Societies of Philadelphia invited us to send a representative to its meeting on Wednesday, February 19, for the purpose of becoming acquainted with the function of that group. Next month we may have more to report in this connection.

The report of the Treasurer, C. W. Stose '22, indicates that the Club's finances are in healthy condition; on February 1, 1946, and January 1, 1947, the balances on hand were \$409.43 and \$507.52 respectively. It is of interest to note that a deficit is frequently incurred on our dinner meetings even at prices ranging from \$3.75 to \$4.50 a plate. We can only hope that the cost-of-living index will recede enough to put a sizable dent in these prices in the near future. The second edition of the Club's very popular directory has been mailed to all dues-paying members who were unable to attend the annual meeting in January at the Bellevue-Stratford Hotel.

Speaking of dinners brings us, naturally, to our next meeting on Tuesday, May 20. It is a little early at this writing (February) for details, but we do know it will be convenient for our Wilmington friends. For

the first time in quite a few years, we shall journey down to Du Pont Town for our spring get-together. A car-driving pool helps solve the transportation problem for Alumni who work or live near one another. — ROBERT M. HARBECK '28, *Secretary*, 605 Foss Avenue, Drexel Hill, Pa. *Assistant Secretaries*: SAMUEL K. McCUALEY '41, 288 Copley Road, Upper Darby, Pa.; WILEY F. CORL, JR., '39, Box 358, Bryn Mawr, Pa.

### *M.I.T. Club of Western Pennsylvania*

The first formal meeting of 1947 was held on January 30 at 6:30 P.M. in the University Club, Pittsburgh. It was attended by 34 members and one guest speaker, J. F. Laboon, chairman of the Allegheny Authority. After the usual social hour and excellent buffet supper, the formal portion of the evening was opened by the President, R. G. Lafear '19. President Lafear announced with extreme regret the death since our previous meeting of two members, Warren D. Smith '27 and W. Edgar Reed '97. He then introduced the speaker, Mr. Laboon, who outlined the present and projected work of his group on construction of the sewage and industrial waste disposal system. Mr. Laboon's subject was of vital interest to all industries, as well as to individual residents of Allegheny County, Pa.

The following members were present: E. M. Barnes '23, W. J. Bates '35, W. U. C. Baton '04, W. I. Bickford '01, C. M. Boardman '25, E. L. Chappell '24, F. L. Current '37, J. A. Drain '26, L. B. Duff '14, D. S. Fraser '28, William Goodridge '26, M. M. Greer '26, E. H. Hayes '31, R. D. Hoak '28, G. M. Hoffman '28, B. M. Hutchins '32, M. M. Jenkins '35, R. G. Lafear '19, W. M. Laird '43, H. L. Lang '09, J. P. Larkin '26, C. C. Lawrence '28, H. W. McKeague '34, A. T. Mason '33, G. A. Morrison '09, G. C. Morrisette '35, A. H. Orr, Jr., '32, R. N. Palmer '25, W. H. Reed '27, F. G. Richards '34, C. D. Robson '41, P. R. Toolin '39, D. P. Whittaker '28, and R. E. Zimmerman '11. — WILLIAM J. BATES '35, *Secretary*, 141 Woodhaven Drive, Pittsburgh 16, Pa. .

### *M.I.T. Club of Rhode Island*

This year our Club has held two meetings. Before the first, our membership stood at 82 active members. Al Puschin '28, our President, and your Secretary have since canvassed all Technology Alumni in the vicinity and are pleased to report the addition thus far of 32 new members.

The first occasion was a dinner held on October 18 at the To Kalon Club in Pawtucket. Forty-six members attended. A short talk on helicopters followed, with the showing of a film arranged by J. Burleigh Cheney '11, a past president of our Club. Burleigh is president of Skyways, Inc., of Providence and is interested in helicopters for short-haul use.

The second meeting, a joint affair held on January 22 in company with the Brown Club of Providence, brought out the largest attendance in our history. Fifty-nine members and guests and 109 Brown Club men sat down together at the Rhode Island Country Club. After dinner, Stanton Smith, President of the Brown Club, and President Puschin extended greetings, followed by

talks by President Compton of Technology and Henry M. Wriston, President of Brown University. This meeting was such a success that it may well be an annual affair.

Now for a brief outline of what's ahead. On March 21, a buffet supper and dance is to be held at the Rhode Island Yacht Club in Pawtucket, R.I. In April comes our annual steak and johnnycake dinner at the Anawan Club. In May our annual meeting and election of officers takes place at an as yet undetermined place. To end our year, we hope to hold a clambake at one of Rhode Island's famous spots noted for the succulence of its clams and the delicious flavor of its lobsters. A cordial invitation is hereby extended to all Technology Alumni residing in Rhode Island and environs to join us. Let's hear from you! — WHEATON H. HUTCHISON '28, *Secretary*, 28 Harbour Terrace, Edgewood 5, R.I.

### M.I.T. Club of the Connecticut Valley

The meeting on January 22 was originally scheduled for the Town Hall Grill, which has a 40-guest capacity. As the news became general that Professor Wilbur '26 of Technology was to speak on "The Smith-Putnam Project," the Club was asked by the Chamber of Commerce to allow the Springfield Research Engineers Club, which is sponsored by the Chamber of Commerce, to meet with us. The club directors approved the request, and the scene was shifted to the Sheraton Hotel ballroom, where 80 club members and guests from the Research Engineers Club attended dinner.

After dinner, Professor Wilbur, who is head of the Department of Civil Engineering at M.I.T., discussed the origin and design of the models, which were tested in various wind tunnels, and the final creation of the large windmill on Grandpa's Knob near Rutland, Vt., which operated for three and a half years and during that time produced up to 1,200 kilowatt-hours. He finally discussed the failure of the propellers, due to a concentration of stresses in the fan-blade arm base. The great amount of original and new information gained by the actual operation of a full-size machine and the continuous taking of wind velocity and weather information have contributed much to the practically unknown field of wind power generation and will save much trial and error in future developments.

At the guest table were seated the club officers with Harold Leslie, the General Secretary of the Springfield Chamber of Commerce, and Joseph West, principal of the technical high school of Springfield, who is president of the Research Engineers Club. Among the members who attended were the following: R. C. Albro '07, L. E. Beaulieu '19, J. A. Berges '40, F. S. Bonham, Jr., '41, R. S. Carroll '28, D. J. Cavanaugh '42, B. G. Constantine '26, K. A. Devine '33, M. R. Edwards '22, J. A. Facey '21, W. K. Fitch '36, Alfred Furtek '41, B. P. Hazeltine '3d, '31, H. R. Hobkirk '40, John Kapinos '40, W. F. Kaufman '38, A. D. King '32, O. C. Kohler '31, T. O. J. Kresser '34, A. M. Lovenberg '16, J. L. Newbegin '34, M. H. Nickerson '37, F. A. Nicoli '34, D. J. O'Connell '29, J. C. Parker '27, A. G. Payne '33, D. L. Ross '27, D. K. Sampson '26, I. H. Small '28, C. R. Stempf '42, G. H. Temple, Jr., '36, C. A. P. Thomas '26, John

Thompson '42, B. B. Tremere, Jr., '13, M. D. Triouleyre '32, G. B. Wood '03, and Alfred Ziegler '31.

A new club was announced by Frank Bonham, who stated that an organization called the Springfield Chemical Engineers Club has recently been formed, with the intention of later affiliating as an approved local section of the American Institute of Chemical Engineers. Bonham suggested that anyone interested in joining the Chemical Engineers Club get in touch with Al Landers at the Monsanto Chemical plant in Indian Orchard or with Theodore Kresser at the same plant. Ted is the former treasurer of this Club. The treasurer reported that at the present time there are 297 Alumni on the club records as residents of the Springfield, Holyoke, and Northampton area which comes under the jurisdiction of the Club. — MINOT R. EDWARDS '22, *Secretary*, Holyoke Heater Corporation, 54 Waltham Avenue, Springfield 9, Mass.

### M.I.T. Club of Lower Ontario

The first meeting of the 1947 season was held at the Engineers' Club in Toronto on Monday evening, February 10. John S. Keenan '23, our President, welcomed the members and guests to this, our first meeting since V-J Day. He reviewed briefly the history of the Club to date and added that the present executive had concurred with the suggestion of the Alumni Council that M.I.T. rather than Technology be used in our club name. The report of the nominating committee was presented, and the following officers were elected: President, Maxwell C. Coutts '39; Vice-president, Dudley S. A. Young '27; Treasurer, Bernard H. Morash '12; Secretary, G. Ross Lord '32.

Denton Massey '24 introduced our guest speaker, H. E. Lobdell '17, Executive Vice-president of the Alumni Association. Lobby, as he was known to many of those present, brought us up to date on happenings at the Institute. Student enrollment, finance, housing, and staff problems were interestingly enlarged upon, much to the enjoyment of everyone present. Henry C. Patten '08 expressed the appreciation of the members to Lobby for his visit and also our good wishes for success in his new position.

We were further honored to have as a guest Dr. Otto Holden, President of the Engineering Alumni of the University of Toronto. Dr. Holden briefly reviewed the growth of student enrollment at Toronto and the handling of problems similar to those met at the Institute.

Other members present for dinner included Hal L. Bemis '35, Louis B. Black '14, Clyde P. Brockett '22, John Buss '26, Homer Duggan '25, William B. Elmer '22, Gerard F. Flaherty '27, Richard H. Guthrie '39, John K. Jamieson '31, G. Ross Lord '32, Strathy R. Mackellar '12, Bernard H. Morash '12, Eric H. Smith '39, and R. Massey Williams '27. — MAXWELL C. COUTTS '39, *Secretary*, Sangamo Company, Leaside, Ontario, Canada.

### M.I.T. Club of Tulsa

The new Club was organized and launched at a noon meeting on February 12. William J. Sherry '21 presided at the

meeting and acted as temporary chairman, with Walter S. Smith '30 serving as secretary. The officers elected were John H. Leavell '07, President, Joseph H. Feemster '06, Vice-president, Bernard E. Groenewold '25 and Daniel Silverman '29, members of the executive committee, and Walter S. Smith '30, Secretary-Treasurer. A constitution was adopted, and a potential membership of 25 or 30 members is expected. Tulsa is an unusual town in that many Alumni are in the oil business, which takes them out of town more or less.

Members present at the first organization meeting were as follows: Alanson W. Chandler '37, Refinery Supply Company; James R. Cowles '37, Oklahoma Natural Gas Company; John McC. Dom '31, Jones and Laughlin Supply Company; Joseph D. Eisler '32, Stanolind Oil and Gas Company; Theodore Q. Eliot '42, Stanolind Oil and Gas Company; John D. Fisher, Jr., '36, Carter Oil Company; John R. Fitz-Hugh '37, Carter Oil Company; Lon S. Gregory '24, L. S. Gregory Company; Bernard E. Groenewold '25, Bethlehem Supply Company; Herbert M. Houghton '27, Geophysical Research Corporation; W. Harry Mandeville '99, National Bank of Tulsa; Edgar R. Pettebone '36, Carter Oil Company; William E. Pugh '24, Seismograph Service Corporation; William Seuren '47, Stanolind Oil and Gas Company; William J. Sherry '21, Sherry Petroleum Company; Daniel Silverman '29, Stanolind Oil and Gas Company; Walter S. Smith '30, Process Equipment Company; Scott W. Walker '40, Stanolind Oil and Gas Company. — WALTER S. SMITH '30, *Secretary*, National Bank of Commerce Building, Tulsa, Okla.

## CLASS NOTES

### 1885

According to the records at Technology, the Class of '85 consisted of one man who entered in 1878, two in 1879, three in 1880, 122 in 1881, 10 in 1882, 12 in 1883. Many of these, of course, were special students, some coming from other colleges and one from the United States Navy. Some others felt that they were not in the right school, and about 10 transferred to other colleges. Forty-four completed the full four years, and of these 33 were graduated with an S.B.

The following achieved special success: Charles R. Allen,\* David Baker, Frederick Fox,\* Hammond V. Hayes\* (a Harvard College graduate), Arthur D. Little,\* Isaac W. Litchfield, Tracy Lyon, Richard S. Lull\* (Rutgers College graduate), Alexander R. McKim, Hugh MacRae, Allyne L. Merrill, Everett Morss, Frederick H. Newell,\* Louis E. Reber\* (Pennsylvania State College graduate), Charles R. Richards,\* Robert E. Richardson, and Henry P. Talbot.\* — ARTHUR K. HUNT, *Secretary*, Longwood Towers, Brookline 46, Mass.

### 1888

Richard Devens was born in the Charlestown district of Boston in 1866. He attended the public schools and was graduated from the English High School in 1884. He entered the Institute in the fall of 1884 and was graduated with the Class of

\* Received honorary degrees.

'88 in June of that year from the course in Mechanical Engineering.

In his freshman year Dick was selected by General Moore, instructor in military science at the Institute, as adjutant of the Corps of Cadets, M.I.T. Dick was one of the outstanding athletes of the Class during his entire course of four years, ranking with Billy Dearborn and Fred Ellis as the three top-notch performers in football, baseball, and track. He played fullback on the Institute eleven during all four years and was the star player of the eleven that won the New England Intercollegiate championship in 1887, defeating Dartmouth, William, Amherst, Trinity, and Stevens.

After graduation, Devens went to work for the Clinton Wire Cloth Company of Clinton, Mass., then for the Yale and Towne Manufacturing Company in Stamford, Conn. Next, for three years he was assistant signal engineer with the Hall Signal Company, Westfield, N.J., then engineer for the Weber Railway Joint Manufacturing Company in New York. In 1898, Devens became foreign representative of the Brown Hoisting Machinery Company of Cleveland, Ohio, at 39 Victoria Street, Southwest, London, and made an extended business trip from London to Cape Town, South Africa, stopping at all important gold and diamond mining centers.

On January 17, 1908, he married Helen van Kleeck of New York. They had two sons. In 1928, soon after Dick had passed away, your Secretary called on Mrs. Devens at her home on Fifth Avenue, New York City, opposite the Metropolitan Art Museum, where she lived with both sons.

Fred Ellis took Assistant Secretary Thompson to dinner at the Engineers Club in Boston recently. Ralph and Mrs. Sweetland are living at the Hotel Statler this winter, after closing their house in Framingham. — BERTRAND R. T. COLLINS, *Secretary*, 291 Nassau Street, Princeton, N.J. SANFORD E. THOMPSON, *Assistant Secretary*, The Thompson and Lichten Company, Inc., Park Square Building, Boston 15, Mass.

#### 1890

Notice of the death of Cabot J. Morse of 276 Marlborough Street, Boston, on August 21, has only lately been received, and it is hoped that further biographical information may be available later.

Our good Secretary is enjoying a real vacation this winter. He and Mrs. Packard motored to Florida some weeks ago and are making Longwood, near Orlando, their headquarters while taking trips to Palm Beach, Miami, and other places of interest. They expect to be back in New York about the middle of March to attend the 75th meeting of the American Institute of Mining and Metallurgical Engineers.

At the midwinter meeting of the Alumni Association held in Walker, only two members of the Class appeared at the table reserved for old grads, Tilson and Goodwin, both of whom were in good form and spirits. The television demonstration which followed President Compton's very interesting talk was admirably planned and carried out. — GEORGE A. PACKARD, *Secretary*, 50 Congress Street, Boston 9, Mass. HARRY M. GOODWIN, *Assistant Secretary*, Room 3-233, M.I.T., Cambridge 39, Mass.

#### 1892

Carlson, Ingraham, Ober, and Fuller attended the midwinter meeting of the Alumni Association at Walker Memorial on February 8 and spent an enjoyable evening listening to Dr. Compton's report on the state of the Institute, meeting Dean Baker, and viewing a demonstration of television under the direction of Dr. Zworykin. The members of the Class present talked informally about plans for our 55th reunion. — CHARLES E. FULLER, *Secretary*, Box 144, Wellesley 81, Mass.

#### 1893

John Wood Logan, born in Greensburg, Pa., on December 28, 1872, died suddenly on January 28 of a heart ailment after making a speech at the annual meeting of the Philadelphia Country Club. He was a son of the late Judge James A. Logan, for many years general counsel for the Pennsylvania Railroad, at whose home the writer spent many happy days with John during vacation periods while closely associated with him in the work of Course II. Immediately after graduation he was employed as superintendent of installation, department of machinery, at the World's Fair in Chicago. After this experience he was employed for six years by the Pennsylvania Iron Works Company at Philadelphia, advancing during that time from draftsman to assistant superintendent and assistant engineer in the ice machine department. From 1899 to 1904, he was treasurer and general manager of the Logan Manufacturing Company, which he organized and operated at Phoenixville, Pa., for the production of steel and iron castings. Since 1904, he had been continuously associated with the Alan Wood Steel Company. From the sales department in 1906, he advanced to become assistant manager of the steel work department at Ivy Rock, Pa., in 1911 and manager in 1919. At the time of our 30th anniversary he had been appointed secretary of the company and, subsequently, was made secretary-treasurer of the parent company as well as its subsidiaries, the Rainey-Wood Coke Company and the Upper Merion and Plymouth Railroad Company, being actively engaged in this capacity until his retirement in September, 1946.

Logan enjoyed memberships in the American Society of Mechanical Engineers, the American Iron and Steel Institute, the American Institute of Mining and Metallurgical Engineers, the Racquet Club of Philadelphia, the Philadelphia Country Club, the Markham Club of Philadelphia, and Delta Upsilon Fraternity. He was much interested in art and during the latter years of his life acquired a fine collection of oil and water-color paintings by contemporary American artists. His interest was so great that he finally took up painting himself, doing creditable work, which I had the pleasure of seeing at Gloucester, Mass., during the summer of 1945.

On September 23, 1897, he married Rachel Miller Thomas, who survives him. He also leaves two sons, John W., Jr., and George T., and a daughter, Helen B. (Mrs. Harry W. Need) of Norfolk, Va. The sons, both graduates of the Institute, are now employed by the Union Switch and Signal Company at Swissvale, Pa., and

the Philadelphia Electric Company. He was devoted to his family and was a sympathetic and generous friend. — FREDERIC H. KEYES, *Secretary*, Room 7-211, M.I.T., Cambridge 39, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, 551 Tremont Street, Boston 16, Mass.

#### 1895

We are indebted to Charlie Tillinghast for reporting that he and Lat Ballou on January 22 represented the Class at the joint meeting of the Technology Club of Rhode Island and the Brown Club of Providence which is described among the club notes. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass.

#### 1896

The annual meeting of the New York classmates is scheduled for Tuesday evening, March 18, at the President Tavern, corner of 41st Street and Lexington Avenue. Walter Stearns, who is tied up in New York on his law case, expects to attend, unless it should happen that the gathering of classmates occurs at the time when Walter has a recess from the Court. Whenever he gets such a recess, he goes back to Raleigh, N.C., where he has spent some of the past winters. John Tilley hopes to be present. He reports that his firm has quite a lot of construction work, but suffers from the scarcity of materials, equipment, and labor, so that nonproductivity makes building difficult, slow, and expensive.

At the midwinter meeting of Boston Alumni, held in Walker Memorial on February 8 and featuring television, six classmates appeared, including Damon, Davis, P. B. Howard, Locke, Rockwell, and Rundlett. No particular news seemed to be forthcoming from these men, except that everyone claimed to be getting along very satisfactorily.

Lythgoe's article on the Tucker family appeared in *Chemical and Engineering News*, Vol. 25, No. 3, January 20. It formed a very interesting story of the careers of the father, the two sons, and the daughter, all of whom had made their marks in the world, and also accounted for seven degrees from M.I.T. including three S.B.'s, two M.S.'s, and two Ph.D.'s. This article apparently attracted wide attention, as the Secretary received it from Sam Hunt in Manchester, N.H., and from Charlie Moat in Burlington, Vt.

It was a pleasure for the Secretary to receive a telephone call from Charlie Tucker, reporting that he was back in the genealogical rooms in Boston and that he had recovered from his hospitalization and operation so fully that, as he expressed it, he really felt that he was back 150 per cent. Incidentally, Moat reported that he was leaving with Mrs. Moat very shortly for De Land, Fla., to spend a month or more.

A newsy letter from Jack Eynon in San Diego contained the sad information that he had spent the holidays in the Mercy Hospital, being ambulated there on December 16 and remaining until January 14. He had a combination of bronchitis, pleurisy, and a few spots of pneumonia, but penicillin, streptomycin, oxygen, and a good M.D. and faithful nurses prevailed, so that at the time he wrote, the last of January, he was back home feeding up on liver, iron, and vitamins, and was scheduled to

sojourn in the desert, about 150 miles east of San Diego, for the good effect of the dry air on his lungs. He felt that he was making slow but definite improvement and was looking forward to the desert sojourn as a means of getting him back 100 per cent.

Joe Stickney, who has been president of the Indianapolis Athletic Club for 10, these many years, had his presidential office in the club, four blocks away from the insurance office where he transacted his business. Now that his navigation is somewhat impeded, he has consolidated his two offices by moving everything into the Athletic Club. Billy Haseltine is back in Ripon, Wis., and he says that he is fully recovered from his operation of last year and is as good as new, or even possibly better. He has emulated Dan Bates and taken over the job of teaching a course in descriptive geometry at their local college, which was unable to get a man for that purpose. He says the head of the department of mathematics practically wept on his shoulder, so that Billy went into the attic and found the old textbook of our beloved Linus Faunce, as well as his old plates. He really feels that he is doing a satisfactory job. He and Mrs. Haseltine, however, had to give up their projected trip to a warmer climate for the winter. But, as he says, what is a trip south compared to the privilege of joining the learned and looked-up-to men in the scholastic field? Waldemar L. Sjostrom has moved away from his old home town of Methuen and is now with Mrs. Frederick R. Haigh at 125 Westervelt Place, Passaic, N.J.

Another Bob Flood story reads as follows: "A friend of mine in Boston wrote me the other day and said the warden of the jail hadn't been the same since Bob Flood got out. Now that's a terrible thing to be said about any '96 man. I never was in that jail. The facts in the case were that Jack Farovid and Art Mulvey of Harvard and Jimmy Russell and I of M.I.T. bought a barber pole for eight dollars with the privilege of returning it and getting five dollars back. We then proceeded to steal it. We were pinched, but we showed our receipt to the desk sergeant and were released. We then set it up in another location, and the same thing happened. The third time we were back at the station house, the patrolmen said, 'Say, there's a new man not far from here, work it on him, will yuh?' We said we would if they would ride us out where we bought the pole. They said they would. In the meantime the captain of the district sent out a general order, 'If you see four fellows stealing a barber pole, let them alone. It belongs to them.' The only way they had my name was that he added, 'The leader of the gang is Bob Flood, a Boston Tech man.' Now that's a smear on the impeccable reputation of the Class of '96, and I wouldn't have that happen, would you?" — CHARLES E LOCKE, *Secretary, Room 8-109, M.I.T., Cambridge 39, Mass.* JOHN A. ROCKWELL, *Assistant Secretary, 24 Garden Street, Cambridge 38, Mass.*

#### 1897

At a meeting of the executive committee of the Class held in Boston on February 13, tentative plans were formulated for the 50th anniversary reunion. These plans, not

as yet definitely decided upon, however, call for an outing at East Bay Lodge, Osterville, Mass., beginning Tuesday, June 10, and ending Thursday, June 12. Graduation Day will be on Friday, June 13; and Alumni Day and the Banquet, on Saturday, June 14. Class Day is to be observed on Saturday, June 7. At the exercises on that day some member of the 50-Year Class gives a brief address to the graduating class. If you have not already received further details of the reunion before you read this, you will shortly. Please let the committee know promptly whether you will attend, and let everyone who can possibly come, even if it be for but one day, do so. — JOHN A. COLLINS, JR., *Secretary, 20 Quincy Street, Lawrence, Mass.*

#### 1898

Our distinguished classmate, Roger Babson, has taken a prominent position in the discussion of certain angles of atomic warfare. Roger advises organizations on the seacoasts to provide duplicate installations in the interior of the country in preparation for an emergency of atomic bombing; and he is positive that Boston and other coastal cities will be bombed. Believing in practicing what he preaches, he has endowed a new college in Kansas, the prospectus of which, in part, reads as follows: "UTOPIA COLLEGE, Eureka, Kansas. ORGANIZATION: Located in the center of the U.S., incorporated under laws of Kansas, 1946, with a very broad charter enabling courses in all the professions, as well as liberal arts. The college will be directed especially to adults. IMMEDIATE COURSES: There will first be courses on investments, wills, trusts, etc., also to help parents intelligently advise young people to select the best part of the country — based on their health, training and desires — in which to locate. Hence, there will be courses in geography, climate, natural resources, soil, transportation and population characteristics. DIRECTORS: There are fifteen incorporators who, in turn, have elected five directors. These are Dr. Wallace W. Atwood of Clark University; Mr. Carl W. Eldridge of the National Rockland Bank of Boston; Mr. Richard E. McKown of the Wellesley National Bank; Dr. J. Burford Parry and Dr. C. D. Coryell of M.I.T. Mr. Richard E. McKown is temporarily serving as president. PROPERTY: The college has been given some funds by Roger W. Babson to start operations and is in the process of purchasing 160 acres of land on the outskirts of Eureka known as the Northwest Quarter of Section 26, Township 25, Range 10 East, Greenwood County. This is within walking distance of the city of Eureka (5,000 population) and consists of high attractive ground. The plan is to start with one or two buildings with a swimming pool as soon as building materials can be secured at reasonable prices. It may be two years before the College opens permanently but summer sessions for adults will start in 1947. CONCLUSION: The Babson family has made a success of two educational institutions, namely BABSON INSTITUTE at Babson Park, Mass., and WEBER COLLEGE at Babson Park, Florida.

It is believed that this new institution will ultimately equal the other two, although it will take some time to bring this about. It is located in a section which has very rich

soil and is surrounded by natural oil, gas and minerals. Furthermore, it is within a few hours distance by plane from any part of the United States, with summer sessions for adults in New England." Roger writes that there are now more than 500 students at the Babson Institute. Heartiest congratulations, Roger!

In a semihumorous vein the New York Sun in its "Who's News Today" on December 6, under the caption "Babson Forecasts," printed the following: "Unless the world takes to caring and sharing it won't be faring very well, says Roger Babson. Babson can take credit for foreseeing the 1929 catastrophe, which vindicated his prediction with a resounding crash. If an atomic war comes, the fast-figuring Babson has things all figured out. He's getting ready to build an educational center in the center of the United States. Eureka, he said, meaning he'd found his spot in the Kansas town of the same name. For years he has worried about such things as how to get a dependable method of predicting earthquakes, how to get an automatic translator of languages, how to change birch into mahogany. For years he's been making a living out of the Babson Institute and Babson's Reports, which tell whether or not business cycles will have financiers cycling instead of autoing. He was born at Gloucester, Massachusetts, of fishermen forefathers, and while he likes to see the sea, he likes to see it mostly in paintings. He can't stand the sight of fish. Gastro-nomically speaking, he once said that he believed in eating only that which could be kept in your pocket thirty-six hours without getting stale. He was drinking a pitcher of milk at the time. He started out to be an engineer, got his B.S. degree from . . . Technology in 1898. But he found statistics made a good living, has been making a living in the numbers game ever since. A precise talker, everything about the 71-year-old economist is to the point, including his goatee. In the later 1930s he gave Protestants something to think about. Addressing the Federal Council of Churches of Christ in America at Asbury Park, he said the 'basic trouble' of the Protestant Church in this country was the declining birth rate. Unless that condition were checked, he said, Sunday schools and the churches in general would be seriously affected. Apparently he hasn't recorded any observations since that time to indicate whether or not this warning was heeded."

Speaking of atomic bombing, we were browsing through the Smyth report and, chancing to look at the rear flap of the paper cover, read the following: "The Conquest of Epidemic Disease, by C. E. A. Winslow, 'A book nobly conceived, nobly planned and beautifully written.' — Commonweal. His objective has been to write a history of the ideas on which have been based the efforts to control epidemic disease. . . . The book is based on deep, comprehensive study and able analysis of first hand information. . . . A notable example of good historical writing and scholarship.' — Journal, American Medical Association." How about the disease of war, Charlie?

We traveled west last month with Charles Godbold and his wife as far as New Mexico. The trip continues: "The

next logical stop for us was Albuquerque, N.M., a run of only 181 miles, but we knew exactly the court we wanted to stay at, and we knew we could get our 'good eating' at the Santa Fe railroad station restaurant, a Fred Harvey outfit. We arrived in time to get what we wanted, to look around the town, and to have the thrill of seeing the Santa Fe's *Chief* come in and leave. Our next stop was to be Gallup, only 143 miles distant. On leaving Albuquerque, we immediately crossed the Rio Grande River, which is wide and shallow at this point and had only a small amount of water in it. In this interesting Indian country, we saw the Acoma and Laguna Indian girls in crude wayside stands, selling their pottery. We passed through the great lava flows, where the black lava is spread around for miles, but at the town of Grants, N.M., met a different condition. Here the character of the soil seems to be ideal for the raising of carrots, and year after year carrots are raised and shipped by the car-load to market. Another industry in this town is the preparation of pumice stone powder. The pumice stone is quarried up in the mountain near by (the whole section is full of extinct volcanoes) and is brought into the mill at Grants, where it is ground to powder. Nearing Gallup, we passed Fort Wingate, active in the war as an ordnance plant, with buildings scattered over a wide area. At Gallup we knew just where to stop, and we had our supper at the Santa Fe station restaurant, also a Fred Harvey. Here also we had a chance to see the trains come and leave in both directions, a favorite pastime of mine.

"At Gallup we decided to break away from the beaten path and get into the wilds, so we turned north and headed for the Colorado Rockies. You may remember several years ago Mrs. Evelyn Walsh McLean wrote a serial in the *Saturday Evening Post* entitled "Father Struck it Rich." We were intensely interested in that story, partly because we had been through the country where the Blue Bird Mine, the protagonist in the story, was located, but also because it was well written and very absorbing. All this wealth came from this mine near Ouray, Colo., and we were anxious to visit it again. So from Gallup we were on our way north toward Shiprock, N.M., driving 93 miles across the Navajo Indian Reservation, a desert if there ever was one — Indian hogans aplenty but not a drop of water or blade of grass. At Shiprock we turned east along the San Juan River through an agricultural section to Farmington, a rich fruit and farming section on the Animas River. Where there is fruit we always load up, and this was one of the places. Continuing a few miles, we came to the Aztec Ruins National Monument, one of the ancient Indian communal dwellings which are scattered over this section of the United States, the largest group being at Mesa Verde, not far from here. After leaving Aztec, we soon crossed into Colorado and passed through Durango, still following the Animas River but soon losing it as we began to climb up to Molas Lake Pass (10,900 feet) over the worst mountain road I have met with for a number of years — narrow, rough, with sharp turns and sheer, unprotected, precipitous sides. These very qualities, however, make it safe. To pass another vehicle one

has to stop and then proceed cautiously. I was on the outside all the time and passed a road grader and a small bus. They came to a dead stop, while I crept by as close as possible to them without scraping their paint and with my companion, who was looking over the precipice, telling me not to give another inch. Well, the other side of that pass brought us to Silverton, and we still had the Red Mountain Pass (11,000 feet) to go over. This was better as to the road but more dangerous, since the drivers made greater speed. We arrived safely, however, in Ouray, which has an elevation of 7,700 feet but is so surrounded by towering mountains that the sun is lost early in the afternoon and is not seen again until late the next morning. Ouray is an active town but hasn't accommodations for many visitors. As a reminder of the old days, there is the Blue Bird saloon and café, where we took our meals, and the Walsh library, which is more of a museum of minerals with several old mining views and a picture of Mr. Walsh hung on the wall. We made 250 miles this day, which is plenty in an up-and-down country."

It will be remembered that the Godbolds started their trip from their former home in Cabin John, Md., a delightful suburb of Washington, D.C. The Secretary and his daughter enjoyed a ramble in the spring of 1946 along the path of the Chesapeake and Ohio Canal past Cabin John. The adjoining fields, woods, and cliffs were covered with spring wild flowers — spring beauty, Dutchman's-breeches, bloodroot, hepatica, Virginia cowslips, yellow adder's-tongue, purple violets in patches like solid pools of violet, early saxifrage, and 15 or more other varieties of early spring flowers; flowering quince bushes and lanes of redbud (the dogwood was not yet out). The ramble extended to the Great Falls of the Potomac, full of water, which thundered down the gorges. There are many mechanically interesting locks along this historic old canal, which for more than 100 years was used to transport goods from the East to the West and vice versa, and is now a national park. Then, alongside the canal for a half a mile or more, there is an enormous Naval Research building, concerning which Charles Godbold can give us more particulars. Was this your bailiwick, Charles? If any classmates are visiting Washington in the spring, do not fail to drive out to the Great Falls of the Potomac, or if you like to tramp and love wild flowers and scenery, start about a mile east of Cabin John on the C. & O. Canal, where you will find the Dutchman's-breeches on the Potomac side of the canal, in graceful profusion, and walk to the Great Falls of the Potomac. I get no commission for recommending the trip, but you will enjoy it beyond imagination and treasure the memory. It is a walk of about 15 miles from the recommended point of departure up to the falls and back, and there is some hard climbing, unless certain sections of the canal have been repaired since last spring; so if you try the walk and are all done in, don't blame me. I warned you.

The Class was well represented at the midwinter meeting of the Alumni Association on February 8 in the Walker Memorial. Present from '98 were Barker, Butterworth, Chapin, Dodd and sister, Fleisher, Mrs. Eva Crane Morrill, and Sullivan. This is

the first time we remember having seen Eva Crane since graduation. She was looking remarkably youthful and informed us proudly that her son was graduated from M.I.T. with the Class of '31. The absorbing demonstration of television was enjoyed by all. Dr. Compton gave a very informative and interesting talk concerning the progress and problems of the Institute.

Charlie Wing, 790 Purchase Street, New Bedford, Mass., writes: "I had an unexpected visit from our classmate Carl High. I have seen him but once since he was graduated in '98. We had a very pleasant day together. Jim McIntyre, Carl, and I spent an afternoon reminiscing. Carl has been running a small farm, as he calls it, in Partridge, Kansas, and last fall he turned it over to his daughter and son-in-law and began to travel. He has been out to the Pacific Coast, calling on old classmates, and then came all the way East. After leaving me, he started for Sarasota, Fla., where he is to spend the winter with friends. Carl's farm is a mile wide and three miles deep, and he calls it a farm because he raises wheat as well as cattle. A good deal of our conversation the day he was here was concerning the 50th reunion which, I am sure, is going to be worth while."

By the way, Charlie has some very flossy stationery: at the top the word "Wing's" is superimposed above a city landscape with a rising sun; then below this art come the name of the company and the address; and then immediately under the address, a separating line and the words, "We furnish homes." Thanks, Charlie, for the letter and the information about Carl. In the words of the immortal Longfellow and of Priscilla Alden, "Why don't you speak for yourself, Carl?" How about a letter for the class notes, further describing your farm and trips. Thank you!

Said the Class Agent to the Class Secretary, "The Alumni Fund year starts April 1, 1947. Just remind the boys to ante up." Said the Class Secretary to the Class Agent, "Keep your blamed mouth shut! The boys and girls of '98 ante up well." However, you can help. About two-thirds of the Class never see The Review because they have not yet contributed to the Alumni Fund. When you are talking with classmates, try casually asking them how they enjoy The Review.

The Secretary has changed his address. The company with which he is associated has combined offices and laboratories at its factory, located also in Boston. Kindly note this change of address and keep those letters coming. — EDWARD S. CHAPIN, Secretary, 463 Commercial Street, Boston 13, Mass.

## 1899

Paraphrasing a slogan coined by the Salvation Army, you can throw a Technology man down but you can't put him out. The Institute gives a man too fine an educational foundation for that. William Stark Newell's life is a living example of this statement. Under a picture of Stark in the January 11th issue of *Business Week* is the statement, "For veteran shipbuilder William S. Newell, life began anew at 50."

Stark, who spent his first two professional years as an instructor at Technology,

joined the Bath (Maine) Iron Works in 1902. This company was established in early Colonial times. First, it made ships out of wood from the forests on the Kennebec River; then, after the Civil War, it made ships out of iron. Stark became key man of the company during World War I, when the shipbuilding business was booming, and continued so to be even after the company had passed into the hands of Portland banking interests in 1917. In 1925, the plant was shut down, Stark remaining for a time as engineering works manager. But when the concern was sold under the hammer to Central Maine Power interests, he went to work for the New York Shipbuilding Company at Camden, N.J.

Those must have been discouraging days to a man who had given a quarter of a century of life to one industry, but right here was where he did some shrewd planning. He waited until 1928, when the plant could be bought for a reasonable figure; then with two others he secured control. In that year he became president of the reorganized Bath Iron Works Corporation and has remained in that capacity ever since, in spite of his theoretical retirement several years ago. Although still very much in the shipbuilding business, taking its lesson from experiences in the past, the company has now formed a nonnautical subsidiary which will make good ballast to keep the concern on an even keel during the reconversion period.

Later news regarding the Bath Iron Works came to the Secretary in the form of a clipping from the Portland, Maine, *Herald* of December 31. Seven Bath Iron Works officials retired as of that date, among them being Stark Newell and Everett Pierce of the Class of '99. The clipping adds many interesting details. Newell's first contact with the B.I.W. was in the late Nineties, when, as an undergraduate of M.I.T., he spent several vacations at the plant as a shipfitter's helper. During World War II, the B.I.W. built nearly one-third of the new destroyers used in the conflict. In 1940, Newell laid out and built the Todd-Bath and South Portland Shipbuilding Corporation yards and served as president of both until their 1943 merger as the New England Shipbuilding Corporation. Newell is a director of Mack Trucks, Inc., the Maine Central Railroad, the Union Mutual Life Insurance Company, and the Bates Manufacturing Company; he is chairman of the board of a Portland broadcasting company and a member of the Portland Port Authority. He is president of the United Seamen's Service and recently ended a two-year term as president of the American Society of Naval Architects and Marine Engineers.

Pierce worked with Newell, his M.I.T. classmate, as a shipfitter's helper at the Bath Iron Works, Ltd., to begin his shipyard experience and nearly 30 years later, as assistant naval architect of the Marine Engineering Corporation, had charge of making hull plans for such renowned naval vessels as the cruiser *Houston*, lost in the 1941 Battle of the Java Sea, and the *Augusta*, favorite of the late President Roosevelt. From Technology in 1899, Pierce went to the Newport News Shipbuilding and Dry Dock Company for a year and then to the New York Shipbuilding Corporation, where in 1908 he was leading draftsman on

plans for the battleships *Utah* and *Michigan*. In 1915, he entered the William Cramp and Sons yard for 12 years and was chief hull draftsman when the yard built 7,500-ton cruisers, the Matson liner *Malolo*, and the Eastern Steamship liners *Yarmouth* and *Evangeline*. In 1929, Pierce left the staff of Theodore Ferris, New York naval architect, to become naval architect of the Bath Iron Works Corporation.

On a trip to Cleveland last November, your Secretary looked up Walter H. Sutliff in the Marion Building. Not having seen Walter since commencement, he was not surprised to find some wrinkles and gray hairs, but plenty of that old vim, vigor, and vitality. Walter is vice-president and secretary of the Bolton-Pratt Company, general contractors, with whom he became affiliated in 1908. Walter's first job on leaving Technology was with the Barnett and Record Company of Minneapolis, a firm which made a specialty of designing and building grain elevators. Then, for four years, he was with the Peninsular Engineering Company of Jackson, Mich., designing and construction engineers of cement manufacturing plants. This work took him to various parts of this country and Canada. After that he worked for the Truss Company of Cleveland before his association with the Bolton-Pratt Company. Walter ought to join the International Kiwanis Club, the motto of which is "We Build." — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. ARTHUR H. BROWN, *Assistant Secretary*, 53 State Street, Boston 9, Mass.

## 1902

By a clipping from the *New York Times* of December 28, we learn that Bill Kellogg's son Howard was married on that date to Frances Saunders Perkins, daughter of Mr. and Mrs. Charles Callahan Perkins of Bryn Mawr, Pa. The wedding took place at the Episcopal Church of the Redeemer, Canon Ernest C. Earp performing the ceremony. Miss Perkins served as a sergeant in the Wacs for three years and attended the Shapley School in Bryn Mawr and the Garrison Forest School. Mr. Kellogg was graduated from the Noble and Greenough School, Harvard College ('37), and Harvard Law School ('40), and served during the war as a captain in the Army Air Forces.

Two hundred and twenty reply postal cards were sent out on January 30 to those who had been at some time affiliated with our Class, announcing our 45th reunion of June 12 and 13. Each person receiving a card was requested to send back the reply card with his correct mailing address if interested. Fifty have replied up to this date, and the cards are still coming. Have you sent yours? It's not too late. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston 16, Mass.

## 1904

At the instance of Alumni Secretary Locke '96, the undersigned are submitting a few notes for The Review. The Class has suffered a blow in the nervous breakdown of our genial and efficient Secretary, Harry Stevens. After months of hope that he would become his own self again, it now seems improbable that he will be able to resume his regular duties. We therefore suggest that a class get-together be arranged in

June, when someone may be officially designated to carry on the secretarial duties. A serious fire in Steve's home several months ago resulted in the destruction or loss of some of the class material and may be the reason some of you have not received replies to correspondence.

A recent description of Steel Corporation activities in a current magazine displayed a picture of Walter Hadley, III, who, after occupying various positions at the big Gary plant, is now manager of operations of the Carnegie-Illinois division with headquarters in Chicago. It is reported, however, that he is soon to retire. — News from Bethlehem, Pa., is that Hubert Merryweather, who has been connected with the mining department of the Bethlehem Steel Company for many years, has lately been retired. This status is overtaking others in the Class, and it might be a good idea if we turned the preparation of some future edition of our class notes over to the wives of retired classmates for an account of their experiences in handling displaced personages and their advice on the most approved methods.

The Boston and Maine Railroad is often praised for the wise business management which helps keep operations out of the red. Gus Munster, I, Vice-president in charge of purchasing, shares some of this glory. He is gradually getting the road equipped with the most up-to-date Diesel engines, which show good economy in handling both freight and passenger trains. He has finally decided to use Boston and Maine service himself instead of the New Haven brand and has moved from Quincy to Winchester, Mass. — Another railroad man, F. J. Carty, II, assistant master mechanic of the Boston and Albany, has recently been retired, after service with his road ever since graduation.

Still two more to go on the retired list are Chauncey Clements, VI, and Jasper Crane, V. Clements came to Technology after graduation from Yale. At the latter institution he paid his way by working as a motorman on a night trolley run. For 37 years he has been with the Southern New England Telephone Company — Crane was a vice-president of the Du Pont Company at the time of his retirement. He was a graduate of Princeton ('01) and spent a year at the Institute as a special student in our Class.

Bill Boggs, III, who has been making an enviable record as superintendent of the Noranda, Quebec, copper smelter, has been elected a councilor of the Canadian Institute of Mining and Metallurgy for the Province of Quebec. — Word has been received of the death in Perth, Ontario, of Harry Doherty, I, on October 4. Those of us who knew Harry in our student days have pleasant recollections of him. Perhaps more details of his career will be available for the next issue of class news.

It has been so long since any class news was published that there must be many interesting items available if you will only send them in. We shall be glad to arrange them for publication, but not being mind readers we must depend on you to furnish the facts. Something about yourself or other classmates is grist for the mill. — EUGENE H. RUSSELL, JR., 100 Milk Street, Boston, Mass. CARLE R. HAYWARD, M.I.T., Room 8-109, Cambridge 39, Mass.

## 1906

Eight members of the Class besides the Assistant Secretary and the Secretary were present at the midwinter meeting of the Alumni Association held at Walker Memorial on February 8. They were Ralph Clarke, George Guernsey, Tom Hinckley, Chester Hoefer, George Hobson, Harry Lewenberg, Bill Messenger, and Malcolm Wight. An interesting meeting was enjoyed, as each one had an opportunity to see himself on the television screen as well as to witness a demonstration of television as it will be presented on home receivers.

At this writing (February 17), the Class has the usual number of representatives sojourning in Florida, although by the time you read these notes they will probably have returned to their permanent residences in the North. While we are on this subject, it might be added that Frank Benham, I, retired as chief engineer of the New England Telephone and Telegraph Company on February 7. He and Mrs. Benham left today for Florida, driving over the road. — Charlie Locke '96 writes that Ray Barber is teaching drawing, surveying, and report writing at the Institute of Southern California, residing in Hollywood, as the housing situation prevents him from living any nearer the campus.

The Framingham *News* of December 28 included the following reference to Andy Kerr: "Andrew Kerr of Barnstable, a past commander of the United Spanish War Veterans, and an '06 graduate of M.I.T. in a brief submitted to the hearing emphasized that rather than expand the state college at Amherst, the state should build a university at Framingham. He urged that the present state college campus be used for an experimental agricultural station. Mr. Kerr read a resolution urging Framingham as a site for a state university. He spoke as a charter member of the taxpayers' association. And the situation has become such that Amherst is waging quite an energetic campaign to convince the state commission that only their location should be considered." The Secretary was interested to get this clipping about Andy, as he is quite a frequent caller at the Secretary's office when he comes to Boston in connection with some of his "extra-cranberry-growing" activities. As a matter of fact, he has just left the office after appearing at a hearing at the State House opposing a proposed bill to prohibit farmers from working their own children on their farms. Andy has so many irons in the fire it is hard to follow them all, but he shows a willingness to devote a part of his time to some of the important questions of the day, and he is certainly to be commended for his interest.

The Secretary is in receipt of a clipping, probably taken from the *Transactions of the American Society of Civil Engineers*, referring to S. A. Greeley of our Class. Classmates will be interested in this complete account of Greeley's activities, which indicate that he has led a very active life and attained prominence in his profession. It reads as follows: "A Sanitary Engineer of many years' standing, Samuel A. Greeley — senior partner in the Chicago firm of Greeley and Hansen, hydraulic and sanitary engineers — has devoted much of his time to municipal engineering problems. Mr. Greeley was graduated from Harvard Col-

lege in 1903, with the A.B. degree, and from . . . Technology in 1906, with the Sanitary Engineering degree. His first professional work was as assistant engineer for the New York firm of Hering and Fuller from 1906 to 1910. From 1912 to 1914 Mr. Greeley was an assistant engineer in the Sanitary Engineering Department of the Chicago Sanitary District. In the latter year, he established his own private practice in Chicago. Since then he has been engaged on sanitary engineering projects by many municipalities, including New York, Chicago, Philadelphia, Los Angeles, Boston, etc. His work has taken him to South America, England, and the Continent. During World War I, Mr. Greeley was sanitary engineer for the U.S. Shipping Board, and supervising engineer on the construction of Camp Custer, Michigan. During World War II, he served as special consultant to the Construction Division and the Corps of Engineers, and his firm had general charge of the layout and construction of Camp Forrest, Tennessee. Recently the firm was retained by the War Department to report on sewage disposal for the Canal Zone."

Greeley has been very active in the American Society of Civil Engineers since his election as a junior in the society in 1907. He has served on a number of committees and in 1934 and 1935 was president of the Illinois section of the society. He is the author of numerous papers on sanitary engineering, some of which have been awarded prizes and medals. He was co-author with Rudolph Hering of a standard textbook, "*Collection and Disposal of Municipal Refuse*." — JAMES W. KIDDER, Secretary, 50 Oliver Street, Boston 10, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills 82, Mass.

## 1907

Our lead-off story this time is the following letter from Birendra Chandra Gupta, whom you will all no doubt remember from undergraduate days. Dated January 31, at P. O. Burnpur, via Asansol, Bengal, India, it reads as follows: "I was delighted to receive your communication dated January 19, and much as I should like to be with you all at the reunion, it will not be possible for me to leave India during 1947. . . . I will say at the very start that God has been good to me. I celebrated my 65th birthday on the 19th of December, and my good wife, whom you may have known as Ethel Stetson Colcord of Lynn, Mass., completed her 63d year on the following day. My three daughters are all married. Comola's husband is the deputy director-general of All India Radio and is stationed at New Delhi. She has a son about 12 years of age and a daughter about two years old. My second daughter, Eunice, is married to Lieutenant Colonel A. K. Dev of the Army Medical Service. He is a surgeon specialist stationed at one of the military commands in India. She has a daughter aged six and another aged two. My youngest daughter, Tara, whose husband is consul at Nova Goa, has four children — three boys ranging from seven to two and a half years, and a little girl, six months old. Our children visit us from time to time, and we have very fine family gatherings, usually at the Christmas season. . . . We have built a nice house in the hill station of Darjeeling, about 7,000 feet above sea level, where my

wife goes every year for the hot weather. I join her for one month, generally in June, when the plains are hot and uncomfortable. I retired from government service when I was principal of the Dacca School of Engineering in 1938. I was then 57 years old, and you will be amazed to hear that the life insurance doctor gave me a clear bill of health for a 10-year policy which will mature this year. I am thinking of taking out another policy then. I feel very fit and still have a terrific appetite. I am not fond of Scotch, and I don't smoke. . . .

"In 1938, I joined the Indian Iron and Steel Company, the Steel Corporation of Bengal, and the Indian Standard Wagon Company, under the managing agency of Messrs. Martin and Company, as their town administrator. I have been with them, you see, for nearly nine years, and took out my third contract last May. The job has a very great variety of departments connected with it, and I can now talk glibly, though not with authority, on such simple subjects as medicine, surgery, hospitals, sanitation, town planning, architecture, road making, the electrification of towns, dairies, hotelkeeping, education in primary, middle, high, and even technical schools, and so on. In other words, I am a head cook and bottle washer, but mostly a bottle washer. Anyway, the job has kept me alive and very fit. I do a lot of fruit and tree planting in the town. Life is very pleasant in this country since the army of occupation went away. However, we miss the fine American lads who regularly used to come to see us from the five air bases which surrounded our town of Burnpur, at distances varying from six to 50 miles. I hope before long to pay the U.S.A. a visit, provided conditions of housing and travel are comfortable. I am so glad to hear of the excellent record of your family, and I hope that you and Mrs. Nichols will take a trip out to the Far East and look us up in India. With air travel these days, distances mean nothing, and one can reach Bombay from New York in 45 hours. Please give my love and best wishes to all the old boys and their families at this great 40th reunion of the Class of 1907. . . . India sends her greetings to America."

Sam Marx wrote me on January 24 that he was about to leave Chicago for Los Angeles, to be gone approximately two months. He has some 15 million dollars' worth of architectural work there, included in which is a large house for the head of one of the big motion picture companies. Sam says: "All those beautiful girls — 30 years too late — it makes me sick!" He will be at Osterville, Mass., for our reunion, June 20-22. In fact, he and Stud Leavell and John Frank, together with Johnnie West and Molly Scharff '09, these latter two being sort of adopted members of '07 at each of our five-year gatherings, plan to reach Oyster Harbors several days before the actual opening date of our reunion. — Frederic Menner, 990 East Valley Road, Santa Barbara, Calif., has written to Harold Wonson, telling of being with Sam and Stud in Palm Springs, Calif., during the winter of 1945-1946. — All signs continue to point to a fine attendance at our reunion, only about two months in the future when you read this. I am delighted that not only our stand-bys expect to come, but also several fellows who

have never enjoyed one of these occasions with us. Two in this group heard from during January are J. Ellis Doucette, who is business agent for the North Reading State Sanatorium at North Wilmington, Mass. (Ellis used to play the drum in our freshman band), and John R. Randall, II, who writes on the letterhead of the Reserve Supply Company, 2570 Ellis Avenue, St. Paul 4, Minn., wholesale distributors to retail lumber dealers, and whose name appears as president of the concern. John says that his daughter is to be graduated from Mount Holyoke College in June, so that he will have two big reasons for coming to Massachusetts. — Seymour J. Egan, who is still engaged in naval architectural design at the Boston Navy Yard, writes that his youngest son, John, of the First Division Marines, was married last September to a Wakefield, Mass., girl.

Our Class Treasurer, Harold Wonson, informed me on January 31 that at that time 134 of our mates had paid class dues totaling \$409, a substantially greater sum than our collections at any previous five-year period. This is a fine commentary on the effectiveness of Harold's letter writing and on the co-operative generosity of you fellows. As a rule, the men who pay class dues are the same ones who contribute to the Alumni Fund, and this leads me to say, in my capacity as class agent, that when you read this another fiscal year for the Fund will have begun. I hope you will continue to be prompt and generous in your giving to this most worth-while project. — In closing these notes, may I say that Wonson and Macomber, our Class President, join me in extending our warmest invitation to come to our 40-year reunion. No, we are not offering to pay your bills, but we will guarantee you a most cordial welcome and a grand good time. When you receive detailed notice on this soon, with registration blank attached, obey that urge within you and write me that you are coming. — BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. HAROLD S. WONSON, *Assistant Secretary*, Commonwealth Shoe and Leather Company, Whitman, Mass.

### 1909

Being class secretary and being here in New York at that has made the secretarial job just "duck soup" these past few weeks. Chet Dawes and Muriel were in town at the end of January. Chet was attending a convention of the American Institute of Electrical Engineers. We had dated ourselves up for lunch while Chet was here, and Chet brought along Reg Jones, and that made a foursome. Now, I am in town for lunch all the time. Fact is, luncheon dates are one of the chief joys of my life. But this 1909 affair was such a delightful occasion that I am on the lookout for excuses to have more A.I.E.E. conventions and more 1909 get-togethers. We mentioned casually some of the things we had in mind for the 40th reunion already booked long ago for Oyster Harbors in 1949, among them a campaign to increase the amount already allocated to the 1909 class fund. You'll be hearing more about the class fund during the current year. But keep in mind the reunion at the place we like best down on the Cape! Exact dates will be proclaimed in ample time for us all to be on hand.

Seeing Reg and Chet inspired me to write to our Midwest Secretary, George Wallis, to get his views on class matters. Back came a reply, pronto! George was on the point of leaving for a few days in New York, and could I be constrained to come over to the Roosevelt and have breakfast with him on a certain morning that he named? George admitted that he had his time in New York scheduled for 18-hour days, and breakfast was his best time for class affairs. Of course, I was on hand as he had suggested, and again I had a swell time with him. Lucky George! He and Mrs. Wallis will be pushing off from Chicago in a few days for a holiday down near Biloxi on the Gulf Coast. I told George that the next time I go out to see my sister and the family in Detroit, I would drop over to Chicago to see how he made creamery packages, and I hope to make good. And he, on his part, must tip me off whenever he is in New York! All this time I had had an engagement to lunch on St. Valentine's Day with Reg Jones at the Bell Lab office in New York. That was a date that I would keep, no matter what! For I had been over to the Lab before and want to tell you-all that, if you are lucky enough ever to get an invitation to lunch with Reg, you'd better accept it before you hang up! A nice-looking young lady in uniform brings in a delicious lunch and serves it right in Reg's office! The surroundings are delightful! So, indeed, is the company, and the food super! As a host, Reg has a particular place in my affections! He had hoped to have George Wallis with us, but George had left town. He was able, however, to get Harry Whittaker, VI, whom I do not see often enough. Harry is always good company. This time he told us about some of the projects his firm, Ford, Bacon and Davis, Inc., had undertaken during the war, particularly in connection with submarines at New London. It was a good record, too. As I send this bit of copy in to catch this particular Review dead line, my only wish is for more months like this one I am telling you about. I want more informal reunions for 1909! Who'll be the first to tell me that he will be in town and will let me take him to lunch and see some classmates?

George Southgate, I regret to tell you, died on last November 8 at his home in Pittsburgh. George had been suffering from a serious infection that affected his heart. He made a valiant fight, aided by the best medical attention, but his heart finally proved unequal to the strain. George had lived for many years at Forest Hills out on Long Island with his office in the city. He was well known in the field of electrochemistry as the inventor of a combustion-electric process of smelting and of devices for electric power conversion. George was associated with many companies and during the early Thirties had close associations with our classmate Jim Critchett. At the time of his death, he was chief engineer of the Vanadium Corporation of America. He always came to our class luncheons, and I for one was always intrigued by his southern intonation as well as by the Southgate charm. I shall sorely miss him at our class get-togethers. George's wife was from the South also, and she is planning to return to her home city of Birmingham, Ala.

Andrew Matte, VI, of the Bell Lab was on the program of the Electrical Engineers' convention that I have mentioned. He and a colleague at the Lab told of methods of improving long-distance communication by frequency shift telegraphy. Disruption caused by giant sun spots was reduced; all of which is a bit out of the realm of a Course V man like me! Certainly, the world does move! I sent John Mills, VI, a Christmas card using his New York home address. Back from him soon came a clipping of his from the *Engineering and Science Monthly*, and I learned that John had recently gone to the California Institute of Technology at Pasadena. He describes his job like this: "I shall be at the beck and call of all students, undergraduate or graduate, who wish to consult me unofficially and confidentially about their educational and vocational problems." If that isn't the perfect job for John, I miss my guess! For how well I recall taking one of my nephews along with me one Sunday afternoon when John lived in Millburn and was housed for the moment. John had always been wonderful company for me. But what I remember best was the way John got under the skin of the nephew. Before I knew it, John was talking about what the boy was planning to do as he grew up! So, Caltech can congratulate itself on having John Mills on its faculty, and I hope John thrives on what southern California has to offer him!

The Review Secretary and Muriel both enjoyed that luncheon in New York which Paul describes, and we are hoping that occasions like this will occur frequently. At the midwinter Alumni Association meeting held in Walker Memorial on February 8, seven of us were present. One can always count on the two Shaws, Art, I, and Laurence, V. Laurence was married on January 16 to Mrs. Florence Ralph at Cotuit, Mass. The Class sends its congratulations. Art reports that he is now four times a grandfather, and Fred Perry, VI, has had his first such experience. Fred, Jr., S.M. in Chemical Engineering, is the proud father of Clark Bancroft Perry. George Haynes, VII, and Joe Parker, I, who is now with Jackson and Moreland, were also present. Frank Loud, VI, whose attendance is 100 per cent when he is in town, was at Colorado Springs on an engineering project. The report of President Compton, the presentation of Dr. Baker, the new Dean of Students, and the spectacular demonstration of television under the sponsorship of Vladimir K. Zworykin and the Radio Corporation of America will undoubtedly be described elsewhere in The Review.

B. Edwin Hutchinson, III, chairman of the finance committee of the Chrysler Corporation and national Vice-president of the National Association of Manufacturers, was the speaker at a meeting of that association in New York on December 6. He pointed out that three months after V-J Day the reconversion of the automobile industry was substantially accomplished, and it appeared that it would be able to go ahead in its stride. Two factors, however — strikes in the plants both of the industry and of suppliers, and government control, particularly of materials — had restricted production to a disappointingly low value. Although the demand for automobiles

appears firm at present price levels, he's afraid that if the seesaw increase in wages and prices continues, a limitation of production is certain to occur. He sees, however, many elements of strength, such as a large pent-up demand, large purchasing power, and the potential for large-scale production.

We regret to report the passing on December 31 of another classmate and member of Course VI, Walter Sheldon Rodman, aged 63. Born in Wakefield, R.I., Dr. Rodman received his bachelor's degree at Rhode Island State College and then completed his engineering education at the Institute. Many of us in Course VI remember him well, particularly in the laboratory where he performed his thesis work. After four years as instructor in mathematics and engineering at Rhode Island State, he joined the University of Virginia, where he was made a full professor in 1917 and later dean of the engineering school. He was very active in professional societies and was vice-president of the American Institute of Electrical Engineers and of the Society for the Promotion of Engineering Education. The Review Secretary frequently saw him at these society meetings and was always impressed with his pleasant and genial personality. He was a member of the honorary fraternities, Phi Beta Kappa, Sigma Xi, Tau Beta Pi, Theta Tau, and Phi Sigma Kappa. His widow, the former Sarah Wilcox Palmer, survives. — PAUL M. WISWALL, *Secretary*, 90 Hillside Avenue, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary*, Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries*: MAURICE R. SCHARF, 285 Madison Avenue, New York 17, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

## 1910

For the past month the news of classmates has been rather meager, but I have heard from one or two class members by mail and seen others at the Alumni Council meeting and the midwinter alumni gathering on February 8.

Dan Gibbs has definitely settled in Auburn, Maine, where he is associated with Alonzo S. Harriman in the practice of architecture. Gordon Holbrook and Bob Burnett attended the Council meeting in February, and we had a delightful time at dinner reviewing our experiences of the past four or five years.

The following is from a clipping of the New York *Herald Tribune* of December 29: "Gordon G. Holbrook and Albert R. McMullen, two noted technical men in the American shipbuilding industry, will retire as of the end of the year, it was announced yesterday by the Federal Shipbuilding and Dry Dock Company. Mr. Holbrook, who has been works manager of the Federal shipyards, graduated from . . . Technology and joined Federal in 1920 after working for the Bath Iron Works, Bath, Me., and various plants of the Bethlehem Shipbuilding Company. He is a member of the Society of Naval Architects and Marine Engineers."

Art Curtis and Cliff Waldo were present at the midwinter alumni meeting. We had a very pleasant time, and all enjoyed the television demonstration. Walt Spalding has been visiting in Boston for a week or

more and is returning to Hawaii, where he intends to open an office as a consulting engineer. — HERBERT S. CLEVERDON, *Secretary*, 120 Tremont Street, Boston 8, Mass.

## 1911

Heartiest congratulations to our Class Vice-president, for the New York papers of January 27 proclaimed his advancement: "Howard D. Williams has been appointed president and general manager of Erwin Wasey & Co., Inc., to succeed Louis R. Wasey, who resumes his former office as board chairman. For the past 14 years Mr. Williams has been associated with the advertising agency, prior to which time he occupied an executive position at the National Cash Register Co." We're proud of you, Zeke!

"Let us take a lesson from the man we are honoring tonight," said Carl Ell, XI, President of Northeastern University, as principal speaker at the Edison centennial banquet held at the Hotel Statler in Boston, on February 11, "and pray that a new Edison — a genius in social science, inventor of aids to social improvement — may be found among us and that he may have all the character traits and the social philosophy of Thomas Alva Edison — genius of the industrial era." After enumerating the many technical advances pioneered by the "Wizard of Menlo Park," Carl stated that the upward trend in the "standard of living" which Edison's inventions have brought about has not always meant social progress. "Achievement without improvement," he said, "is the cause of many of our social problems.

"Our social development is lagging behind our scientific and industrial accomplishments. We see these social-lags in the economic insecurity associated with labor and management troubles, strikes and unemployment. We see these lags in schools and colleges which mold and sharpen the intellect of our youth but do not give it moral direction. We see these lags in the homes in which there is little attention given to the care and training of children. We see these lags in the churches which do not relate religion to life and which fail to make themselves virile and effective. We see these lags in world affairs, where able statesmanship is so often lacking. We all need more of the spirit of Thomas A. Edison — more imagination, thoroughness in preparation for every task, complete devotion to the work at hand, tireless persistence, learning from failure and, above all, the ability to take things as they are and make them serve obvious human needs."

Nine days earlier at a midyear graduation at Northeastern, Carl had told the graduating class, 85 per cent of whom were World War II veterans who had returned from service to finish their college careers, to stand on their own feet and think for themselves, emphasizing their duty as college people to "recognize and choose the grand prizes of life which are permanent and enduring, rather than trinkets which are cheap and temporary." Incidentally, we noted with interest in an Associated Press cut, showing Edison's widow and son, Charles, of the Class of 1913, present at the dedication of a heroic bust of the inventor in the Museum of Science and Industry, New York, that our own Rear Admiral de Florez, II, director of the spe-

cial device center of the Navy at Port Washington, N.Y., was included in the group photographed.

Add to your list of 1911 grandparents Chet and Mildred Pepper of Melrose, for on January 26 at the Melrose Hospital their daughter, Emilie Lawrence (Pepper) Carpenter gave birth to a son, Stephen Windsor. Those of us who attended the 35th reunion at East Bay Lodge, Osterville, remember pleasantly that Emilie and her husband, Windsor S. Carpenter, were present with the Peppers.

Shortly after returning from my New York trip in early January, I heard from Norm Lougee, VI, with whom I had renewed acquaintance at the 1911 lunch on January 15, that "Messrs J. H. Manning, N. A. Lougee, and W. A. Sleeper, partners of J. H. Manning and Company, announce that the consulting engineering practice which has been carried on under that name for many years, will, after January 1, be carried on under the firm name of N.A. Lougee and Company with Messrs. Lougee, Sleeper, and J. W. McDonald, Jr., a new partner, as general partners and Mr. J. H. Manning as special partner." Their offices will continue at 120 Broadway, New York 5, N.Y., and the announcement adds that "other than this change in business style, the practice will, in all respects, continue as it has in the past in the fields of business economics and consulting engineering for utility and industrial companies and financial institutions. Good luck, Norm!"

Fifteen members of 1911 were present at the midwinter meeting of the Alumni Association at Walker Memorial on February 8: Marshall Comstock, VI, with a guest, John T. Kemper, a University of Missouri graduate associated with Marshall at the Wagner Electric Corporation; Dennis Denison, VI; Henry Dolliver, I; Bill Fortune, I; Fred Harrington, I; Jack Herlihy, II; Roger Loud, VI; Charlie McManus, I; Fat Merrill, I; Morris Oman-sky, V, and his daughter, Frieda, who is a Technology graduate, Carl Richmond, I; Bog Stevens, IV; O. W. Stewart, I; Emmons Whitcomb, X, and Aleck Yereance, I. An address by President Compton, introduction of the new Dean of Students, Dr. Baker, and a remarkable demonstration of television made it a very worth-while evening, which concluded with "ye Sec" being televised while playing the traditional Stein Song, which the nearly 1,000 present sang.

Burleigh Cheney, II, proudly announces that on February 1 at Norwich, Conn., his Skyway Corporation, 1125 Hospital Trust Building, Providence, R.I., formally inaugurated activities when the ship, *Skyway Helicopter No. 1* was christened, thus inaugurating charter service for the company. Immediately after the christening, Colonel John Sandusky, Burleigh's Vice-president, who has 300 hours of logged time as a helicopter pilot and was in charge of setting up the Army's helicopter operations in the Pacific, put the ship through a stiff test, showing how it can back up, fly sideways, hover in the air, and go straight up. On the following day, he gave the world's first demonstration of food delivery into a stricken area, purposely making the landing on Norwich's town green, an exceptionally small area. As the Norwich *Bulletin* put it, "In years to come

these youngsters who saw the demonstration can say with pride: 'When I was little, I saw the first delivery of food stuffs ever made by a commercial helicopter.' "

Skyway's helicopters will be maintained by, and operate from, the facilities of the East Coast Aviation Corporation at Hills-grove, R.I., and West Hanover and Bedford, Mass., and will also fly out of three Connecticut fields — Bradley Field, Windsor Locks, Brainard Field, Hartford, and Trumbull Field, Groton. Burleigh, we wish you all success in your very modern venture!

Word reached me in mid-February that Bob Haslam, X, had been stricken with pneumonia in Mexico City, so I immediately communicated with his secretary at the Standard Oil Company of New Jersey, 30 Rockefeller Plaza, New York 20, and here is Miss Clapp's story: "Mr. and Mrs. Haslam left New York on January 4 on what was to be a six weeks' visit to Mexico and Central America. The day Mr. Haslam reached Mexico City he became ill and in two more days was taken to the hospital with virus bronchial pneumonia and a very high temperature. He remained in the hospital in Mexico City for about two weeks and about February first left Mexico City for Acapulco, where he is now recuperating. Both his doctors advise at least two months for convalescence, and they have also said he should not return to New York until all threat of winter weather is past. Thus the Haslams expect to be in Acapulco for the rest of February, and at the present time I don't know where they will spend the month of March." Miss Clapp thoughtfully gave me Bob's hotel address in Acapulco, so that I was immediately able to write him, and she added, "Each letter we receive from Mr. Haslam tells of continued improvement, and we are confident that he will have fully recovered his strength upon his return this spring." So say we all of us!

Don Stevens, II, informs me that Nat Seeley, II, has also recently successfully handled a bout with Mr. P. Neumonia. Another 1911 man who is winning a long-drawn-out fight in the Health League is B. Lawrence, I, who wrote notes of appreciation to both Don and me for our messages to him following his inability to attend the New York 1911 lunch, as related in the March Review notes. He hopes to be able to leave the Baker Memorial at Massachusetts General Hospital, Boston, in early March, and he and his wife hope to be able to find a place to live in Massachusetts rather than return to New York City. "One of the many errors in my life," he writes, "is that I have allowed the press of work to prevent me from keeping up with my old classmates. At the time of the 30th reunion, it was my intention to attend, but at the last minute business interfered; and, of course, at the time of the 35th, I was flat on my back, midway in this yearlong illness. This siege has at least taught me that it is better to take time to enjoy life than to keep one's nose to the grindstone constantly."

At last we've caught up with Carl Barnes, VI, for the Alumni Office reports him now at 122 McKinley Avenue, Syracuse, N.Y. Since writing his seven-page tome, "Application of Testing and Theory to Roller Bearing Designs," Paul Cushman, VI, has made findings which bear

out his contentions therein, and he believes he has found a fundamental defect in all bearings as now constructed. Cal Eldred, VI, we are informed, is now with E. B. Badger and Sons, 75 Pitts Street, Boston 14, but he has not as yet supplied us with details.

In the January issue of the Boston and Maine Railroad magazine was a picture of the honor guests at a dinner celebrating the 50th anniversary of the Concord (N.H.) Railroad Y.M.C.A., and there, looking as natural as you please, was Paul Pearson, II, general agent at Concord, who, according to the caption, is also president of the board of directors of the "Y."

Sam Schmidt, VII, editor of the Every Friday Publishing Company, 1313 American Building, Cincinnati, Ohio, will surely have an interesting story to tell the first time he is able to attend a class reunion, for from his daughter, Mrs. Milton L. Shulman, in a note accompanying a check for her father's contribution to the Alumni Fund, we hear: "My father is not still in Europe, as you thought, but again there. He left at the end of the year to continue the relief and rehabilitation work which he was doing in 1945. According to the last letter I received from him, he was still in Paris, but he mentioned that he was planning to leave for Germany and Czechoslovakia that week."

From the Alumni Office we learn that C. Phillips Kerr, II, a colonel, is now in the East after long service on the West Coast and may be addressed at 708 North Overlook Drive, Alexandria, Va. — When these notes reach you, Alumni Fund VIII will have been inaugurated, and let's make this the one when 1911 goes over the top in the very early phases of the campaign. Happy Easter! — ORVILLE B. DENISON, *Secretary, Chamber of Commerce, Gardner, Mass.* JOHN A. HERLIHY, *Assistant Secretary, 588 Riverside Avenue, Medford 55, Mass.*

## 1912

Plans are just about completed by the reunion committee under the chairmanship of E. W. Davis. You will have received full details before reading this. The location chosen is attractive, and we expect a large attendance. Several have already written that they will be there — among them the Harold Mannings, the J. C. Pratts, the Johnnie Noyeses, and many others from near by.

John Whittlesey, who has been all over the country, writes as follows: "After nearly six years of war construction, we finally landed back on the East Coast last March. We were lucky enough to find a small apartment, bring out our own furniture, and subside. Only the other night we counted up eight different states in which we had lived during that time. After a winter in St. Paul and one in upper New York state, Wilmington is south as far as we are concerned. Altogether it was a very wonderful experience in seeing both the country and the interesting types of construction. On the whole, I believe that the state of Washington would be our first choice of a place to live, and Oklahoma or Texas second. It was interesting to note the great similarity of people the country over, the only exception being in the South, where they vote democratic! From the construction angle, Hanford was by far the

most interesting. Peacetime enterprise is never on so elaborate a scale. In the price and delivery situation of this last year, so much construction has been held up or postponed that it is difficult to guess how long I shall be in the office here. I had not forgotten that this is a reunion year and intend to come if at all possible. I shall appreciate it if you will keep me posted. There are three grandchildren now." — FREDERICK J. SHEPARD, JR., *Secretary, 125 Walnut Street, Watertown 72, Mass.*

## 1914

On Saturday, February 8, Boston Technology Alumni turned out in large numbers to attend the midwinter meeting. Television was the subject of the evening, and an excellent example of the progress of the art was given, with ample opportunity for spectators to "tune in" their own picture. Unfortunately, your Secretary was unable to attend, but Ernest Crocker took over the recording of 1914 men present. He reported seeing Atwood, Frank Dunn, Boggs Morrison, Squire and Doc Swift, Harold Wilkins, and our honorary member, William Jackson. Blakeley, Charm, Fales, and Hamilton had previously said they were planning to attend, but Crocker declared he was unable to locate them. Atwood reported that in spite of a recent small fire in one of his new processes, his new chemical enterprise is now beginning to swing into real production.

Dave Gould is now with Durite Plastics, Inc., in Philadelphia. The Brunswick Radio Corporation, with whom he previously worked, has decided not to go ahead with the development program Dave was heading; hence the transfer to Durite. — Gus Miller, who for five years has been associated with the New York Ordnance District, has finished his work there. Currently he is considering some offers which will take him back into the electronic industry.

Ray Dinsmore, who is in charge of research and development for the Goodyear Tire and Rubber Company of Akron, has been elected a trustee of the Research Institute of Kansas City, Mo. Your Secretary understands this to be an organization designed to promote research and industry in the Midwest, much as is done in this section by the New England Industrial Research Foundation, of which your Secretary has been treasurer and a trustee for several years.

Major General Waitt was in Boston recently, having just flown back from a quick inspection trip through England, France, and Germany. Although he has made many of them, Alden reported this to be one of his roughest transoceanic crossings. He had as his fellow passenger the Italian prime minister, Ettore Giolitti.

George Whitwell is featured in the February issue of the *American Gas Association Monthly*. First, there is a five-page article by him on "Underwriting Gas Appliance Approvals." It describes the operations of the A.G.A. testing laboratories and the relationship between the laboratories and the appliance manufacturers. In another part of the magazine is a picture of George receiving a wrist watch from the director of the laboratories on behalf of the staff members. The occasion was George's retirement as chairman of the laboratories'

managing committee. He has served in this capacity for the past five years and as a member of the committee, on which he will continue, for 18 years.

Remember Alumni Day, Saturday, June 14, at Cambridge. — HAROLD B. RICHMOND, *Secretary*, General Radio Company, 275 Massachusetts Avenue, Cambridge 39, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York 19, N.Y.

### 1915

On April first, the eighth year of our Alumni Fund opens. The Fund is so firmly established with you now that it is only necessary to remind you to send your check early and send it generously. The final returns for this year will be in next month's notes, and I hope good old 1915 again goes over the top on its quotas.

Fifteen men do get along in business! Max Woythaler, general manager of Hodgman Rubber Company, Framingham, Mass., since 1931, has recently been elected president. Jerry Coldwell has recently been elected executive vice-president of Ford, Bacon and Davis, Inc., engineers in New York City. Jerry has been advancing with this firm since 1926. In answer to my letter, he wrote: "Thanks for your letter of congratulations. It is a great help to know that my friends are wishing me well on my new assignment. As usual, getting to Boston is rather difficult; from our point of view it is much easier to get to the West Coast, because we have business out there and very little in New England. . . . One advantage about this new job is that I should be in New York when the class dinner is held here this winter (assuming we have one). Last year I missed it."

Archie Morrison spent two days with Gabe and Tess Hilton in New York, where they were having a holiday as reward for Gabe's good work for Brockway Motor Company in Buffalo. I saw Allen Abrams while he was in Boston on business and visiting his daughter, a junior at Wellesley. We had a visit from Ben and Margaret Neal, who were in Boston from Lockport, N.Y., to see their daughter Peggy, who is at Pine Manor, Wellesley. If Boston attracts more 1915 families as a center of education for their children, we'll have some pleasant meetings with classmates here.

In January, at "The Cloisters," Sea Island, Georgia, Weare and Kath Howlett met Ralph and Mrs. Waterman from Boston. This is the first contact any of us has had with Ralph since graduation, and Weare has worked on him to join in the Boston dinners and activities. In addition to the regular old Boston crowd, I've recently seen Clyde Mackenzie, Al Sampson, and John Dalton, all looking and feeling very well. In a Boston *Herald* editorial on January 29, Fannie Freeman's preliminary survey for the recreation board of the Boston Park Department was favorably mentioned. Nice work, Fannie! Here's a gay letter from Jim Tobey: "As to news, there isn't much. I am still doing my radio program over the Yankee Network and writing several books on the side. I see Millard Pinkham once in a while at the Harvard Club, to which both of us renegades belong. . . . I hope you will come down for a visit some time soon. On Tuesdays and Thursdays, I am generally at home, telephone RYE 1575, and on the other days

can be found in the morning at the Harvard Club. I usually depart for home after lunch, to which you are hereby invited.

. . . I have been asked to deliver a speech in Peru next April, and hope to do so. I mean Peru in South America and not Indiana. During the war, I was in Brazil for a short time, having flown gaily from Natal to Dakar across the South Atlantic. . . . Give my best to your better 19/20ths, whom I look forward to meeting.

Remember, send your Alumni Fund check at once. Add a little to last year's and put 1915 over the top again. Many thanks! — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

### 1916

It is with deep regret that we list the death of Burkett D. Newton of 1212 Milan Avenue, South Pasadena, Calif. Burkett died in July of 1945, but the notification was only recently sent to the Alumni Office. Your Secretary has expressed the sympathy of the Class to Mrs. Newton.

Early in January, Ralph T. Jope '28, Secretary of the advisory council on athletics at M.I.T., wrote requesting a class contribution to the athletic fund. Feeling that the Class would support this cause, we got in touch with Bill Farthing and Hovey Freeman and sent Mr. Jope our check for \$50. Mr. Jope wrote: "Many thanks to you and your classmates of the Class of 1916 for your contribution of \$50 to the alumni athletic fund, which is used in assisting the finances of the Athletic Association." This would be a worthy project for us to undertake each year. Certainly we are all for it.

Art Shuey wrote from Shreveport, La., "I have lived in Louisiana so long that people think I'm a native — I've been in Shreveport since 1934. Married but once, I have three sons: the oldest a lawyer, the next one now getting his Ph.D. from Wisconsin in physical chemistry, and the youngest about to be graduated from Centenary College here. I have been doing property management work since 1925, first for New Orleans banks, and afterward for the private owners. My activities are those you would expect of a good healthy extrovert. Business, sport — much fishing and some hunting — the city planning commission, the draft board, the Rotary Club, all get their share of my time, although the fishing has been a little neglected lately.

"Very seldom do I see any Tech men, except Mort Favrot in New Orleans. He was a transfer from Tulane and stayed at Technology only one year. I saw the Los Angeles group in 1940 but since then have lost contact with them."

Dick Fellows writes from Emeryville, Calif.: "I have been with the General Cable Corporation since 1924, spending 19 years at our Bayonne, N.J., plant and the last four years here at our Emeryville plant, where I am technical superintendent. My daughter is married and living in Portland, Ore. As she has two girls, two and four, I have been a grandfather for some years. My son was graduated in electrical engineering from the University of Colorado last June and has been with the Navy in Alaska since July. We expect his return within a few months, and I hope he will be able to take some post graduate work at M.I.T.

"Both my wife and I enjoy living in California after spending so many years in the East. I have seen a good deal of Jack Heller, at the weekly luncheons of the M.I.T. club in San Francisco, although for the last few months their meetings have conflicted with the luncheons of the American Institute of Electrical Engineers, which I am compelled to attend since I am on their executive committee. I have seen very few 1916 men here, but should be glad to hear from any of them who may be in this vicinity."

At a recent meeting of the stockholders of the State Street Trust Company of Boston, Thomas Little of Belmont, Treasurer of the Bemis Brothers Bag Company, was added to the board. Tom has been with Bemis since 1916, except for his service during World War I, from 1917 to 1919, when he was discharged with the rank of captain. He has spent the ensuing years representing his company in London and Calcutta and since his return to Boston has been chiefly engaged in the purchase and importation of jute goods and in the general finances of the company. He is also a director of the National Council of American Importers. During World War II, he served for some time on industry advisory committees in Washington.

Hal Gray is doing some nice work in precision die castings in high-melting alloys that should interest many of you engineers who wish to save machining on costly small parts and at the same time get close-limit accuracy. He sent us a most interesting folder on precision castings, and his letterhead read "Gray Manufacturing Company, Syracuse, New York." He wrote as follows: "Your letter asking for information caught me in the holiday season and at the close of the year, when I was unusually busy. In fact, the one-arm paper hanger has pretty much of a cinch compared with the situation in which I found myself. Some time ago, I got the idea that I wanted to get into business for myself and became much interested in the precision casting business. As a result, I opened a small shop here in Syracuse shortly before the end of the war. After going through a rather extended developing period, I finally got the thing worked out, and now I am producing some nice work in ferrous and nonferrous alloys. What I am actually doing is the equivalent of die casting small parts in the higher melting alloys, such as carbon steel, stellite, and such. Things are rolling along fairly well at the present time, and I am quite proud of the results that I am getting. As to personal matters, I have a daughter in Rochester, married to a 1937 Tech man, and a son taking an engineering course up at Syracuse University after some two years in the Navy. I find a little time to bowl and play a little golf, but my real weakness is wading the trout streams of the Adirondacks. It doesn't seem as if the 1916 boys ever come to Syracuse. I should like to have any of them drop in and see me if they do come to town."

Charlie Reed, who was a full colonel in the Ordnance ammunition division during the war, recently retired from the Army and from all accounts is now living the life of Riley. Your Assistant Secretary can report from firsthand knowledge that he was a highly regarded officer in Ordnance

circles in the Pentagon Building and elsewhere and that much important work on the quality control of ammunition came under his direction. Charlie writes as follows: "At the reunion I told of my plans for my twin sons, Bobby and Billy — plans then not at all certain; but now I can proudly point to one son at M.I.T. and one at West Point. Since both have survived the first term, I presume they are all set. My other boy, Charles, Jr., is still in Germany. His two and a half years will be complete in May, and I'm expecting to have him at home for a grand vacation in Maine this summer with his wife and daughter. I own a camp and guesthouse up on Androscoggin Lake, at Wayne, Maine. It is a very restful spot with warm bathing, a fine sand beach, and good fishing out front every night when the sun is just 200 mils above the horizon. The films I took of the class reunion turned out quite well. They are eight-millimeter color. My retirement from active service was effective on September 1, and I have been doing some very fancy loafing ever since. I suspect I shan't keep this up much longer, however."

From Peb Stone comes the following: "My first job after getting out of Tech was with the Champlain Silk Mills as assistant to the general superintendent, drafting and designing special machinery and gadgets, making myself as useful as was compatible with keeping out of the way. Then World War I, to which I was introduced by our military mentor of Reserve Corps days, Major Cole, through whose kind offices I was commissioned a captain in the Marines. Parris Island, Quantico, rifle range, artillery range, schools, and frequent 'battles' in Washington were my lot from May, 1917, to October, 1918, when we finally disembarked as an infantry regiment, arriving just in time to be diverted by the Armistice from the front to guarding supply depots at Gièvres. I got out of the service just in time to be a police strike breaker in Boston and thus helped to get Calvin Coolidge his job as President of these United States. And then back to the Champlain Silk Mills, which trusting souls gave me an opportunity to manage their Brooklyn mill with its 500 employees. They moved the mill (what was left of it after the 1921 depression), and I got a job with the American Telephone and Telegraph Company, which, although not generally recognized as an eleemosynary institution, has been the means of keeping the wolf from the door ever since. First, I engineered the move of their department of development and research to new quarters, then organized and developed a unit to provide departmental mail, file, transcription, accounting, library, messenger, and similar services — the job y-clept office manager. Next, I was transferred to an engineering unit devoting its energies to collecting facts about stray electrical currents induced in communication circuits by fraternizing power transmission systems. Our chief instruments were automatic oscillographs, which came to us as children, and we did our best to train them in the way they should go. Rather good fun. But shortly thereafter I was asked to take over the development of methods, particularly for presentation and reproduction of statistical work for the Bell System. That job ran dry some years ago at about the time interest in

employee attitude and opinion surveys came into the picture, and I have been devoting most of my time lately to finding out what employees think and if so, why. I have had a chance at a few extracurricular jobs, sponsored by the company, among which are the following: The real property inventory for New York City was a large-scale project to keep many people busy during a year or two of the depression, and I had an opportunity to develop and supervise some phases of the presentation. The American Society of Mechanical Engineers has sponsored a so-called 'Joint Committee on Graphic Presentation' for some 30 years and during the depression there was an opportunity to work on some of its pamphlets now approved by the American Standards Association: 'Time-Series Charts, a Manual of Design and Construction,' 'Engineering and Scientific Charts for Lantern Slides' and the same ' . . . for Publication.' This is about the only time I have made use of the profession for which I was trained, and it provided contacts with classmates Harold Dodge and Bruce Clark which were very welcome. And come to think of it, I once read an erudite paper before the American Management Association on the subject of 'Office Gadgets.' World War II called my chief into the fray to set up a system of administrative reports and statistics for the Navy Department, and I spent a tour of duty assisting in organization, development, training, and production. Later, we were called upon by the Army for a similar job, which, with its ramifications, occupied so much of my time that I never got around to putting on a uniform again. Dorothy Gleason and I were married in 1921 at the Little Church Around the Corner and have lived in Jackson Heights, Long Island, ever since, moving from three rooms to four rooms, to six rooms, and finally to a house, as the family and friends and collected debris increased and bulged out the old walls. David Appleton was the first arrival, now aged 23, and then Nancy Withington, now 21 years old. David spent a year at M.I.T. and returned from the fight in Europe to resume his engineering education at Pratt Institute. Nancy was graduated from Skidmore College last year, where her mother taught physical education in the days of the 'bloomer girls.' Nance is now 'learning the publishing business' as a secretary at John Wiley and Sons. Golf, bridge, and a home workshop are my current hobbies, which, with taking my turn to officer various clubs and committees, have served as welcome diversions from the job of providing the necessary to pay the taxes and keep up the retirement annuity. As a classmate I am certainly a backslider, but my interests at home and office fill the hours to such an extent that I rarely renew the 'bright college years.' I surely do enjoy the contacts I occasionally make with classmates, however, and feel remiss that I don't make them come more often."

We are glad to report that Tom Berrigan is back on the job again and has made a complete recovery, after three months in the Veterans Hospital for a major operation. Tom writes as follows, explaining that his delay in sending us some news was occasioned by this period of general inactivity: "On April 28, 1942, I was commissioned a lieutenant commander in the

Civil Engineer Corps of the Navy and was ordered to active duty on July 6, 1942, as executive officer for public works in the First Naval District. My whole service was confined to the First Naval District, except for short periods of Seabee conditioning training at Davisville, R.I. On July 25, 1945, I was released from active duty and returned to my position as director and chief engineer of the sewerage division of the Metropolitan District Commission. By virtue of the above position, I am also an associate commissioner of the Metropolitan District Water Supply Commission, which has been enlarged for sewerage purposes. At present, we are constructing a sewerage treatment works at Nut Island, the terminus of the South Metropolitan District, which is estimated to cost five and one-half million dollars. We are also preparing plans and specifications for a pumping station and force main to extend the North Metropolitan relief sewer from Chelsea Creek to Deer Island. Other projects on the board are the contemplated amplification of the sewerage system in Alewife Brook and the construction of marginal conduits on the north and south sides of the Charles River, as well as a sewerage treatment works at the terminus of the North Metropolitan Sewerage System. During the past year, His Excellency Governor Tobin appointed me chairman of the Merrimack Valley Authority, which was directed to investigate and report on the facilities considered appropriate to abate the pollution of the Merrimack River, which report has now been filed with the Massachusetts legislature, and it is expected that it will be published and available to the public within a few months. [Secretarial note: As this is home territory for your Secretary and formerly home territory for your Assistant Secretary, thank you, Tom, we are sure it is a good report and does the right thing by the good old Merrimack River.] In 1939, I built a home on what is called Blueberry Hill in Westwood, approximately 15 miles distant from the state capitol. Here I live with my wife, Helen Flynn Berrigan. We have no children. During off hours from work, I dig in the dirt and push a wheelbarrow to improve the landscaping around my home. The location is, in my opinion, very desirable, and it is possible to view the country to the southwest from my back porch and sun deck for a distance of 10 miles."

We had a brief note from Hal Gray, reading as follows: "You will be interested to know that the day after I sent in my letter to you, I had a telephone call from Rusty White, who came into town and had a little visit with me. I enjoyed having him very much, and we had quite a bull session."

Since there are only a few more issues, we request that as many as possible mail us some information concerning their business or social activities. — RALPH A. FLETCHER, Secretary, P.O. Box 71, West Chelmsford, Mass. HAROLD F. DODGE, Assistant Secretary, Bell Telephone Laboratories, 463 West Street, New York 14, N.Y.

## 1917

A member of the Class of '17 was attracted to a recent note in the Monsanto Magazine on the "Encyclopaedia Britannica." To those not otherwise familiar

with this collection of books, it is the set formerly published under the direction of E. P. Brooks, by Sears, Roebuck and Company. The correspondent was especially intrigued by a picture of a bald head which, according to the caption, belongs to Monsanto's Carlton M. Dean, associate manager of engineering sales, who is thus publicized as the author of a new Britannica paper on "Sulfuric Acid."

Irving B. McDaniel has been retired from the Navy as a captain (Construction Corps) and has betaken himself to his native California, where he has acquired a small ranch in Monrovia. It is reliably reported that Mac will devote himself to the raising of avocado pears and orchids. His present temporary address is 326 South Normandie Avenue, Los Angeles 5.

Lin Noyes, who has been spending the winter in Tucson, Ariz., and in California, is to be in Florida for the rest of the spring. He plans to be in New England in late April. — RAYMOND STEVENS, *Secretary*, 30 Memorial Drive, Cambridge 42, Mass. PHILIP E. HULBURD, *Assistant Secretary*, Phillips Exeter Academy, Exeter, N.H.

### 1918

April is a time when a tardy spring is likely to arrive with a burst of glory. Shy and dainty flowers which one may have longed for during the bleak winter months when the iron-hard ground imprisoned roots and bulbs, now burgeon into eye-filling beauty with surprising profusion. And so it is with news, frozen for awhile in the remote snowbanks of some desk drawer, only to flood the streams of communication when some invisible warmth thaws them out. For example, there have just come to hand four different and detail-laden accounts of Frank Creedon being appointed by President Truman to be national housing expediter. Every one of these topographical nosegays bears the date line of December 12. Ah me! Where have they lain dormant these months unframed by the pages of The Review?

Under date of January 2, a clipping from the Revere, Mass., *Journal* at last shakes out its folds to land, again tardily, in the hands of your scribe, with news which was news way back in 1936. Revere seems to be running a little series on its favorite sons. Anyway, the clipping says: "January is the birth month of many Revere natives and among them is Edwin M. McNally, vice-president of the Barbasol Company, now a resident of Indianapolis, Ind., where he takes an active part in civic and musical activities. Mr. McNally was born in Revere, January 3, 1896. . . . He was graduated from Chelsea High school and received his S.B. degree in mechanical engineering in 1918 at . . . Technology. His business career has centered entirely about Indianapolis and has been confined to only two concerns. His first position was with the Allison Engineering Company as assistant chief engineer from 1920 to 1926. . . . He joined the executive staff of the Barbasol Company in Indianapolis as assistant general manager in 1927 and he has been associated with that concern continuously since that time. He was promoted to positions of increasing responsibility until, in 1936, he was elected vice president and director. He is also a member of the board of directors of the Boston Tooth Paste

Corp. During the first World War, Mr. McNally was appointed an ensign in the U. S. Navy in 1918, was later advanced to lieutenant (jg) and was discharged from the service in 1919. He married Dorothea L. Campbell in 1924 and is the father of two sons." (But not, we take it, of "No brush, no lather, no rub in.")

Then there are the literary flowers that burst spontaneously from the author's pen, sometimes to grow in value as the seasons pass. Nat Krass has recently purchased at auction a letter, penned by George Bernard Shaw, to the Women's Action Committee for Lasting Peace in which the unshaved Shawian says, "Votes for Women is a failure. It keeps them out of their 50-50 share of government and the United Nations is not their job. It is not specifically feminine and is too big for your little Women's Action Committee." Upon being asked whether he agreed with these sentiments, Nat very tactfully showed that knighthood is still slightly in flower by replying, "In a way." We wonder how Mrs. Krass feels about it. Or how does Ev Rowe's daughter, Eleanor, married on January 10 to Ralph Leo Drumwright, feel about it? Would changing to a dicotyledon after having been a monocotyledon all one's life, make a difference?

I am much indebted to Pete Sanger, Sax Fletcher, and Ned Longley for their keen eyes in spying pieces of class news and for the speed with which they transmit it to me.

Final, new-leaved growth to break ground in this editorial wilderness is a sort of second crop on an item of some months ago concerning Jim Flint. Our informers tell us that he was recently at M.I.T. for the purpose of consulting Professor Gaudin on some problem in metallurgy. It is true, as previously reported, that last summer he was on a ranch at Gallatin Gateway, in Montana just north of Yellowstone Park. He has built himself a house there, paneled, he says, in birch with his own new-blistered hands. But now, after building the Naval Ordnance Plant at Forest Park, Ill., subsequently commanding it, then forsaking torpedoes for birch paneling and the simple life amid the unspoiled beauty of Montana mountains, he is back in Columbus, Ohio, with the Jeffrey Manufacturing Company, probably to head their research and development. Except for the fact that the wrinkles are seamed a little deeper, either by the marks of character or by association with the Rockies, Jim is unchanged. "I bet you looked beautiful in the uniform of a captain in the Navy!" we said. "I did," sez Jim, "I was positively handsome." Thus do the shy and dainty flowers burgeon! — GRETCHEN A. PALMER, *Secretary*, The Thomas School, The Wilson Road, Rowayton, Conn.

### 1919

Word has been received from Marshall C. Balfour, whose home address is 22 Yung Chang Lu, and business address, Room 123, 1320 Peking Road West, Shanghai. He writes as follows: "Your postal card of September found its way out to China. Our office and residence were re-established here in June. In spite of problems, life goes merrily on. I have lately returned from a tour in Japan and Korea. In September, I was in Manila for a week and had several pleasant

sessions with Aubrey Ames (Socony); he retires soon — which shows the age of 1919. I expect to come home next July or August and shall perhaps stay a year."

R. S. Holmgren writes from 314-321 Union Building, San Diego, Calif., as follows: "I am still with the San Diego County Water Authority with the new title of assistant chief engineer. We have a \$2,000,000 construction program to begin immediately and on completion in October shall take over for operation and ultimate ownership the \$15,000,000 aqueduct being built by the United States Navy. I am finding the work and southern California very interesting. My younger son, Richard, Jr., entered M.I.T. in September as a freshman in the Class of 1950. My older son, George, is attending the University of California."

Ev Doten sent in a news item from Detroit with the comment, "No news of myself — just plodding along." The clipping from the Detroit *News* of January 28 ran as follows: "Charles A. Chayne, chief engineer of the Buick division of General Motors Corporation, was elected president of the Veteran Motor Club at its annual meeting in Boston, Mass. Chayne, who has been a director of the club's Michigan region for the last two years, succeeds Alexander E. Ullman, of Riverside, Conn. It is the first time a Michigan man has headed the organization. The VWCCA with 1,000 members, is the largest organization of hobbyists in the country devoted to collecting and preserving ancient cars." — Our address for Carlos Krebs, listed as 39 Moraine Street, Jamaica Plain, Mass., is incorrect. If anyone knows his whereabouts, kindly inform your Secretary.

Evelyn Kitchin wrote giving us the news of Don Kitchin's family. Their son, Robert, and his wife have a son, Robert Merrill, Jr., born on September 12 in Brunswick, Ga. Bob is with George I. Scott Company, certified public accountants. Their second son, Charles E., was married on June 22 and is back at Harvard to get his M.A. in romance languages (Spanish in particular). Their third son, Don, Jr., was graduated on February 9 from the Tufts engineering school, with a B.S. in mechanical engineering, and is now at Pittsfield, taking the General Electric test engineer program. Evelyn Kitchin has been doing some more nurses' aid work at the Newton Hospital, and Don, Sr., has been devoting some of his time to playing the piano and studying Russian. They send their best to all.

Paul Sheeline dropped in on February 14. Paul is back on the job in Boston after having spent four years overseas in the Air Technical Service. Paul's son was also abroad in aviation service and carried out the exceedingly dangerous exploit of landing behind the enemy's lines and organizing underground efforts, for which he was given a high award. Paul looks well and wants to be remembered to all the boys. — EUGENE R. SMOLEY, *Secretary*, The Lummus Company, 420 Lexington Avenue, New York, N.Y. ALAN G. RICHARDS, *Assistant Secretary*, Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

### 1920

The entire Class extends deepest sympathy to Ed Farrow, Vice-president of the

Eastman Kodak Company and member of the M.I.T. Corporation, for the recent loss of his wife.

At the midwinter alumni meeting on February 8, your Secretary had the pleasure of greeting the following classmates: Fred Britton, Al Burke, Scott Carpenter, Herb Federhen, Jim Gibson, Erwin Harsch, Phil Nelles, Ken Roman, and Elbridge Wason. We all enjoyed the super television show that the Radio Corporation of America put on at this meeting and wished that every one of our local classmates had been there. Harsch is back in these parts after a considerable period in Tennessee, and we hope to have him with us at future class gatherings.

Classmates should make better use of the M.I.T. luncheon club on the second floor of Thompson's Spa, Washington Street, every noon from 12:00 to 2:00. It's a good place to get together and renew old friendships.

Carleton Alexander is now in Wickliffe, Ohio, at 1408 East 300th Street. Buz Burroughs is living in Scarsdale, N.Y., at 14 Stratford Road. Jack Crowley is with the National Advisory Committee for Aeronautics, 1500 New Hampshire Avenue, Northwest, Washington. Harmon Deal is now living in Evanston, Ill., at 2115 Harrison Street. Colonel Bob van Volkenburgh has left Fort Bliss, Texas, and is now at Fort Hayes, Columbus, Ohio. Leo Weinberg is with the Dr. L. Heymann's Laboratories, Johannesburg, South Africa. — HAROLD BUGBEE, *Secretary*, 7 Dartmouth Street, Winchester, Mass.

## 1921

The mailed announcements of the new Alumni Fund carry the annual reminder of our duty to the Institute. Prompt response will insure the continuity of your Review subscription and minimize mailing costs.

Arthur E. Raymond, Vice-president of the Douglas Aircraft Company of Santa Monica, Calif., and retiring President of the Institute of Aeronautical Sciences, was toastmaster at the recent "honor night" dinner of aviation's top scientific society. Art presented the organization's six prized annual awards and introduced the principal speaker, Secretary of Commerce W. Averell Harriman, at the dinner which opened a series of technical sessions in New York.

Saul M. Silverstein, President and General Manager of the Rogers Corporation, Manchester, Conn., amplifies our previous note about Joseph M. Lurie in a letter which says, in part: "I know that you will be interested to learn that Joe Lurie joined the Rogers Corporation as technical director on January 1. He was formerly with Bonafide Mills, with plants in Lisbon and Winthrop, Maine. He expects to reside in Danielson, Conn., and his headquarters will be in our Goodyear plant. This seems a fitting climax to our 25th reunion, and both Ray and I are looking forward to a very pleasant and prosperous relationship. Incidentally, Joe and I were associated with Bigelow, Kent, Willard and Company in Boston back in 1924 to 1929, and Rogers was one of our first clients."

A welcome note from our genial Alumni Secretary, Charlie Locke '96, states that Axel G. H. Andersen has joined the metallurgy division of the Clinton Laboratories of the Monsanto Chemical Company,

Knoxville, Tenn. Andy was formerly research metallurgist with Phelps Dodge at their New York laboratories. Frank B. Kittredge, district sales manager of the Jones and Laughlin Steel Corporation, writes from his Boston headquarters that his son Robert is completing studies at the University of Michigan after his return from three years of service with the Marines. Frank's avocation is raising purebred Holstein cattle when he isn't otherwise occupied with official civic duties in North Andover, Mass., ranging from supervising township finances to school building programs and war memorials.

Scanning the Institute's current Directory of Students, we note the names of eight sons of members of the Class now in attendance at Technology, who represent all four undergraduate classes, with three each in the two lower and one each in the two upper classes. Included in this group are Paul N. Anderson, Jr., John W. Barriger, 4th, Dudley F. Church, William W. Conant, Herbert C. DeStaeler, Jr., Malcolm H. Kurth, William B. McGorum, Jr., and Stephen H. Senzer.

Recent Navy promotions include these names in the list of new rear admirals: Henry R. Oster of the Bureau of Aeronautics, formerly a commodore, who is a holder of the Legion of Merit, and Joseph W. Fowler, formerly a captain, who is the Navy's industrial manager in San Francisco. Word has also been received that Thomas B. Card, formerly a colonel in the Corps of Engineers, has shed the silver eagles and returned to civilian life. Tom's new home address is 558 Pleasant Street, New Bedford, Mass.

Ernest F. Henderson and Robert L. Moore have added the control of the Providence Biltmore Hotel to the important properties of the Sheraton Corporation of America which they operate together with Ernie's brother, George. The corporation, said to be one of the largest of its kind, now controls and operates 21 major hotels and a group of office buildings aggregating some 60 million dollars, of which the hotel portion is more than 20 million. Besides the extensive group of Sheraton hotels, the best known of the holdings are the Copley Plaza, the Park Square Building, and Thompson's Spa System in Boston. Of timely interest to us now are the four famous resort hotels, the Sheraton Plaza and Princess Issena in Daytona Beach, Fla., the Sheraton-Bon Air in Augusta, Ga., and the Rangeley Sheraton at Rangeley Lakes, Maine. We can vouch for the general excellence of several of the Sheratons from personal experience, and it is to be hoped that Ernie, Bob, and George have suggested to their operating staffs that weary Tech men on the road be given every consideration in that little matter of obtaining accommodations.

Fred R. Kingman, district manager of the Civilian Production Administration, Iolani Palace, Honolulu, Hawaii, has been located in Honolulu since 1939 and was active in construction work until Pearl Harbor, when he became a member of the staff of the military governor. In 1943, he was made district manager of the War Production Board and continued in this capacity through the formation of the Civilian Production Administration until the first of last year, when he returned to

his own business as owner and operator of the Hale Hawaii Building in Honolulu. After the tidal wave destruction of a year ago, he was recalled to his old post in the C.P.A. Fred has two sons, Fred, Jr., four years old, and John P., who is almost two.

S. Paul Johnston, who is a director and associate fellow of the Institute of Aeronautical Sciences, has been appointed a member of the advisory committee of the engineers joint council for the publication of *Who's Who in Engineering*. Samuel E. Lunden maintains his architectural office in Los Angeles and resides in Palos Verdes Estates, Calif. He has three children, Alice, who is 21, Robert, 19, and Ardelle, 13 years old. Olin W. Scurlock is in the real estate business in Dallas, Texas. His son Gilson is now 16.

Paul N. Anderson has five sons, the oldest of whom, Paul, Jr., is now a junior at Technology, after having spent three years in service. The second boy, Frank, enlisted in the Navy after his graduation from Andover in 1942, and Daniel, the third son, was graduated from Andover last June. Quintus is completing his second year at Andover, and the youngest, Timothy, who is 14, is still at home. Paul has lived in Jamestown, N.Y., since our graduation. For the first 11 years he was connected with the Empire Case Goods Company, and for the past 14 years he has been president and general manager of the Dahlstrom Metallic Door Company. In addition, Paul is a director of the Bank of Jamestown, the Jamestown Malleable Iron Company, the Jamestown, Westfield and Northwestern Railroad Company, the Jamestown Mutual Insurance Company, and the National Association of Manufacturers. He is a trustee of the Chautauqua Institution and the Lakeview Cemetery Association and a former president of the Jamestown Manufacturers Association and for 15 years has been one of the eight commissioners of the Jamestown Water and Light Commission.

John B. Baker, chief engineer of the Timken Roller Bearing Company, Canton, Ohio, writes as follows: "I am still at the same old place, coming of age last July with 21 years of service. It is certainly a lot of fun running an engineering department these days, between strikes, shut-downs, and what have you. Our older son, John, formerly in the Navy with a third-class radioman rating, returned from Bikini last fall to begin his junior year at college. The younger son, William, is planning to begin his engineering education, which I hope will finish at M.I.T. We also have a little daughter, Mary, who is lively, sweet, and intelligent."

For your Class Directory, the month's address changes include the following: James J. Birnie, X, 8200 Pinehurst Avenue, Detroit 4, Mich.; A. Ilsley Bradley, II, Residential Real Estate Company, 802 Swetland Building, 1010 Euclid Avenue, Cleveland 15, Ohio; Tristram J. Campbell, II, Kenneth A. MacIntyre Associates, 75 Federal Street, Boston 10, Mass.; Joseph C. Morrell, II, 18 Ridgeway Circle, White Plains, N.Y.; Robert L. Pine, II, 814 Harries Building, Dayton 2, Ohio; Louis D. Striebel, II, 90 Charles Street, Youngstown, Ohio; Raphael van Neste, XIV, Reconstruction Finance Corporation, P.O. Box 1637, Cincinnati 1, Ohio.

Wanted — more news. Write now and share yours with the gang. — CAROLE A. CLARKE, *Secretary*, International Standard Electric Corporation, 67 Broad Street, New York 4, N.Y.

### 1922

One of the major problems of the reunion committee is to determine at an early date a close count of the number of men who will attend. Consequently, if you have not returned the postal card which you received early in March, please help by doing so at once. We believe you will regret it if you let anything short of sheer necessity keep you away in June.

A very prominent member of our Class will probably be unable to attend the reunion. Robert P. Russell, President of the Standard Oil Development Company, will be in London to receive the Cadman Memorial Medal and to deliver the second Cadman Memorial Lecture at the Royal Institution in London. He will speak on "Progress in Petroleum Research." The Cadman Medal is awarded for scientific contributions in the field of petroleum. Major contributions to the development of new processes and new petroleum products have come from the work of the 2,000 chemists and engineers who work under the guidance of Bob Russell. For Russell's wartime achievements, he has been awarded the Gold Medal of the American Institute of Chemists and was presented by President Truman with the Medal for Merit, which is the highest civilian award in the United States. The Class congratulates him on his achievements and hopes that he can get back to the States in time to tell us all about it at the reunion.

The Corinthian Publications have recently published *Charleston, Photographic Studies*, by F. S. Lincoln. Lincoln's professional activities cover a wide field. Our well-known statistician, William W. K. Freeman, with the Mutual Boiler Insurance Company, is teaching school, that is, he is imparting "Creative Statistics" to a large group of trainees for his company. We shall have some problems for him at Marblehead.

Claus Thellefson, whose address is Box 779, Oslo, Norway, has written to Charlie Locke '96, and he and his family are all well. He was in the fighting in 1940 and later in the underground movement. He is now back in his old position with the Norwegian Explosives Company. Thellefson would like to get back for the 25-year reunion, and it will be splendid if he can.

We regret to report the death on last October 29 from a heart attack of Gleason Willis Kenrick, VIII, while he was on leave of absence from the University of Puerto Rico in order to be civilian consultant engineer for the Army Air Forces of the United States. He stayed on at the Institute and received his doctorate in 1927 and then went to the University of Pennsylvania as professor of physics. After that, he lectured in England and at Tufts, and in 1933 he went to Puerto Rico to do research work for the government, later becoming professor of physics at the University of Puerto Rico. — CLAYTON D. GROVER, *Secretary*, Whitehead Metal Products Company, Inc., 303 West Tenth Street, New York 14, N.Y. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo 3, N.Y.

### 1923

As this is being written, I have plans for making the first of a series of general mailings to members of the Class about the 25th reunion and other 25-year anniversary activities of the Class. The first letter in the 1947 series is a request for five dollars in dues to cover the cost of these mailings and other reunion planning. Since we haven't asked dues since our 15th reunion, most members of the Class will be willing to go along for the sake of giving the class officers some funds to work with.

Nice letters have come in answer to our December letter about a 25-year fund. H. S. Ford, Treasurer of the Institute, has received some checks direct, and I have had replies from quite a number of those who think well of the idea of making up the difference to take care of lapsed insurance commitments. As I have emphasized, we are under no great pressure to raise a class fund, as those who carried along their insurance have made a substantial gift possible as a feature of our 25th anniversary. But there are enough members of the Class who feel the urge to do something, and haven't already done so, to make it desirable to have some machinery for their convenience. That's what the class 25-year fund is for. The correspondence so far has brought letters from Mexico and Norway, to mention the remotest points. It was good, for example, to hear from Harold Bjerke in Oslo and to note that he continues to serve the Institute there as one of the honorary secretaries.

A number of 1923 men came to the mid-winter smoker at Walker on February 8. This isn't necessarily a complete list, but I remember seeing the following: George A. Johnson, R. D. Brown, Clarence H. Chaisson, B. E. Warren, H. M. Chatto, D. W. Height, and Franklin K. Haven. Ollie Hooper was among the group, making his first appearance at an M.I.T. affair since his move from Washington to Boston. He is now with Stone and Webster, having left the Federal Power Commission. He says he hopes eventually to be able to bring his family from Washington to Boston.

J. Reid A. Hobson, Jr., writes that he has resigned as director of the Arizona Power Authority to come back East, and that after a brief consulting job in Baltimore, he has joined the firm of Kenneth A. McIntyre Associates, whose principal office is at 2 Rector St., New York. The firm specialized in technical and advisory services in industrial relations for utility, industrial, and business management. — Lowell L. Holmes is with Management Research Associates of Indianapolis. He says he has two sons, both married and with sons themselves, so that he needs no other reminder of how old he is getting.

The West Lynn division of the General Electric Company announces the name of Arthur L. Carvill as assistant manager of sales, in the meter section. Carvill was formerly assistant to the meter and wiring engineer of the Public Service Electric and Gas Company of Newark and in 1941 joined Ebasco Services, Inc., in New York. — HORATIO L. BOND, *Secretary*, 457 Washington Street, Braintree 84, Mass. HOWARD F. RUSSELL, *Assistant Secretary*, Improved Risk Mutuals, 60 John St., New York 7, N.Y.

### 1924

Frank Shaw's recent questionnaires have brought in many interesting replies. We learn, for instance, that Hugh Walker is living in Hingham, Mass., is manager of the Union Mutual Life Insurance Company in Boston, and spent three years with the Army Air Forces in Burma, India, and China during the war; also that H. E. Whitaker has returned to the papermaking industry in Chillicothe, Ohio, after having spent a great deal of time with the War Production Board in Washington and London in 1944 and 1945; also that Miles Cary is manager of system operations for the Virginia Electric and Power Company in Richmond; and that Will Blaisdell is vice-president of National-Simplex-Bludworth, making electronic aids to navigation in New York. Since Will tours the coastline about twice yearly, he should be able to forward some news of other errant class members.

Gib Cowan has been operating a department store in Sault Ste Marie for several years and has four children, the youngest of whom was born last December. Willard van Allen is a physicist with the United States Public Health Service in Washington and no doubt would have many interesting things to tell us concerning his work. How about a letter? — The Alumni Secretary, Charlie Locke '96, forwards three items of interest. Ray Meade, he reports, is with the Department of Labor in Alabama and has also been teaching modern construction methods at Birmingham Southern College and at the University Center. George Holmes has joined the staff of the United States Bureau of Reclamation at Hardin, Mont., and S. C. Massari has become technical director of the American Foundrymen's Association in Chicago. — A clipping from the *News Record*, New York, relates the gathering of 200 Cleveland business and banking leaders and executives of the Industrial Rayon Corporation to honor Hayden B. Kline on his election as executive vice-president of that company. He joined the company in 1925, was placed in charge of production and research in 1929, and was named a vice-president in 1930.

Bill Robinson writes as follows: "Rock Hereford paid me a pleasant surprise visit en route from New York to Los Angeles, where he is working for the Consolidated Steel Corporation. He is developing steel products for rail freight cars for his company, besides having several interesting inventions of his own. He has all his hair and looks as though he could step into the wrestling ring and tackle his own weight class and even better. Jack Lehman and I had a pleasant visit at the Christmas-New Year's luncheon given by the Alumni of Cleveland for the undergraduates who were at home for the holidays. This was the first time I had seen Jack since leaving school. He is doing very well with his company here. Les Twichell is with the Rochester Gas and Electric Corporation; I see him at utility meetings in New York, Cleveland, and way stations. I hope some of the other fellows have been able to follow through with more news for you!" We hope so, too.

Wink, in fact, comes forth with the remainder: "We are sorry to report the

very sudden passing of Henry Shore on February 5. Henry had been ill but about a week. He had worked for the Radio Corporation of America from 1927 to 1942, when he was commissioned as a major in the Army of the United States in charge of research and development of the communications branch in the Office of Strategic Services. His numerous communication devices for top secret operations for the Army and Navy played a leading role in establishing communications with United States agents who were dropped on German soil after the Normandy beach invasion of Europe. He was promoted to the rank of lieutenant colonel in 1943. After being discharged from the Army, he had entered the employ of the Federal Machine and Welder Company in Warren, Ohio, where he was placed in charge of research and development.

"Under date of January 22, Rock Hereford wrote from Los Angeles, outlining some of his contacts en route back from the East. I for one, should like to bestow upon him the Legion of Honor, the Distinguished Service Medal, and any other honors which I could lay my hands upon. Rock is the first recipient of one of my pleas for help in gathering news for Lobbie's sheet for our Class. The deathly silence displayed by Messrs. F. Hungerford, H. Estill, Johnnie Fitch, and Doug Eliot, makes me worry about their state of health. Rock mentions his visits with Bill MacCallum in Philadelphia, Don Moore in Cleveland, and Gordon Hook in Chicago, all of whom seem to be happy and healthy. Perhaps through perspiration and some inspiration on their part, I shall be able to report more news from the laggards in next month's issue. I hope so anyway.

"After many years with McGraw-Hill on both *Electrical Contracting* and *Electrical World*, Malcolm MacNaught has decided to go into his own advertising agency business. I am sorry to lose Mal, for he was an early stand-by of mine when we needed new members for the Technology Club of New York, and we have worked together for a good many years. The association has been great, and I shall miss him. Mal will undoubtedly welcome all his classmates, after he hangs out his own shingle, and will surely be a success in his new undertaking, for he has many friends in the business paper publishing field. I have had a note from Dick Shea, who is with General Electric in Syracuse, and have been hoping to get down to see Ed Dunlaevy at Phelps, Dodge Corporation for a long time. B. Cushman is usually to be found downtown, drawing his six per cent, I presume; and Anatole Gruehr is producing ready kilowatts to suit our needs. Pret Littlefield, of Canada Dry fame, and I spent some hours on the Darien Special the other day, waiting for them to clear up the wreckage of about 30 boxcars just outside Stamford." — FRANCIS A. BARRETT, *General Secretary*, 234 Washington Street, Providence, R.I. WILLIAM W. QUARLES, *Assistant Secretary*, Hollow Tree Ridge Road, Darien, Conn.

## 1926

Headlining the '26 news this month are the President's appointment of Cyril Stanley Smith as one of a nine-man scientific

and technical advisory committee to the Atomic Energy Commission and the presentation of the Legion of Merit Award to Cecil Ogren. Smith is director of the Institute for Study of Metals at the University of Chicago. The new committee on which he is serving was appointed to advise the Atomic Energy Commission "on scientific and technical matters relating to materials, production, and research and development."

Ogren, who is assigned as civilian chief of the planning division at the Watertown Arsenal, received his award early in the winter from the commanding officer at the arsenal. The citation read as follows: "Captain Cecil C. Ogren performed exceptionally meritorious service from April, 1942, to February, 1946, as production assistant and production planning control officer at the Watertown Arsenal, Watertown, Mass. He demonstrated unusual technical ability and exceptional resourcefulness in conducting tests that enabled him to develop improved methods to be used in certain phases of repairing and manufacturing 120-millimeter gun mounts. By his sound judgment and perseverance, Captain Ogren solved many difficult production problems and improved the efficiency of related operations to an extent that resulted in a material contribution to the war effort."

During a visit to Wilmington, Del., in January, the Secretary had the pleasure of seeing Howard Humphrey at the headquarters of the Du Pont Company there and subsequently riding with him to Philadelphia for a meeting of the M.I.T. Club of Philadelphia. Other '26 men who ventured out to the dinner were Bob Richardson, Franklin Washburn, and Willard Vaughan.

Carl Pratt has moved to Marblehead from West Mystic, Conn. Formerly with Electric Boat, he is now an architectural designer with the Boston firm of Coolidge, Shepley, Bulfinch and Abbott. — Thomas Eaton has left eastern United States for the Southwest; he is now water works manager for the Public Service Company in Santa Fe, N.M. — A new address for Lawson V. Peakes, Jr., is 135 Montgomery Street, Canajoharie, N.Y. — JAMES R. KILLIAN, Jr., *General Secretary*, Room 3-208, M.I.T., Cambridge 39, Mass.

## 1927

Plans are progressing very rapidly for the 20th reunion at East Bay Lodge, Osterville, Mass., on June 21 and 22, 1947. By now you will have received the formal announcement. There is plenty of indication that almost all of us are going to make that really big effort not to let anything interfere with our being there. Next month we hope to publish a list of the first to indicate that they will be there without fail.

We have received word of the death of Walter Seligman in August, 1945. Very little information concerning this member of the Class is at hand, although we do know that he was in Course VII and that his last address was 14 de Julio 1641, Buenos Aires, Argentina.

Benedicto Padilla, who was graduated with our Class in the Department of Civil Engineering, was first employed by the Philippine Government bureau of public works. In 1931 he resigned and accepted the position of assistant professor of civil

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engineering at the University of Santo Tomas, in Manila. Five years later, in 1936, he resigned from the university and engaged in private practice as a civil engineer and contractor, constructing buildings, bridges, irrigation structures, wharves and so on, up to the outbreak of the war in December, 1941. The war destroyed all his field equipment, and the tools and other equipment which he had stored in his private warehouse were looted by the Japanese army and navy, so that he is now starting all over again. He was married in 1929, and had two boys and two girls.

The following has been received from Walter K. Johnson, whose new address is in care of the Veterans Administration, Construction and Supply, 900 North Lombardy Street, Richmond 20, Va.: "I was separated from the service about the middle of March, 1946, and spent the next two months loafing and visiting my wife's relatives in Virginia and my own family in Massachusetts. I did a little job-hunting around Boston, having decided not to return to my pre-war post, which was with the Tennessee Valley Authority in Knoxville. I looked up a number of Course I classmates around Boston, namely Jack Boyle, Fred Byron, Jerry Spurr, Reggy Jacobs, and Lawler Rasmussen. I finally accepted a job with the Vet's Administration in Richmond, where I am concerned with construction and supply. Our branch office handles all construction and supply activities pertaining to Veterans' Facilities in the District of Columbia and the states of Virginia, West Virginia, Maryland, and North Carolina."

Abraham Mankovich, a lieutenant colonel, according to the *Waltham News-Tribune*, has received a citation for the Army Commendation Ribbon for meritorious service at the Pine Bluff Arsenal, Arkansas. He is now located at the Aberdeen Proving Ground, Maryland. — Andy Anderson has been appointed plant manager of M. H. Rhodes, Inc. Before this appointment he was vice-president and plant manager of the Schick Company.

The New York *Journal and American* and other New York papers recently announced that Cortelyou L. Simonson has been made a general partner in the firm of Morgan, Stanley and Company. Simonson joined Morgan, Stanley and Company in 1935. He previously was with Lazard Freres and Company, Inc., the National City Company, and the Chase National Bank. From November, 1941, to July, 1945, he was in the United States Army, first in Washington with the Army and Navy Munitions Board, and subsequently in France and Germany. He attained the rank of lieutenant colonel.

See you at East Bay Lodge. — JOSEPH S. HARRIS, *Secretary*, Shell Oil Company, Inc., 50 West 50th Street, New York 20, N.Y.

## 1930

From Chicago comes the best news we've heard in a long time — Bob Nelson's acceptance of the appointment as assistant secretary of our Class! Bob will keep us posted on the doings of 1930 men in that section of the country. Jack Bennett joins me in voicing the appreciation of the Class to Bob for his willingness to accept this responsibility, and we hope you all will

pass your news items his way. After spending four years in the Navy, Bob is back again with the Peerless Equipment Company in Chicago. While in the Navy, Bob and Ollie Green saw each other in Washington on several occasions, and Bob reports having seen Charley Abbott and his family near Boston while awaiting duty in the aircraft carrier *Hancock*, in which vessel Bob was in charge of aircraft maintenance.

Among the Chicago classmates, Bob has been very close to Bob Clyne, Tom Wigglesworth, and George Perry. The latter has been with the Automatic Electric Company since graduation and spent a few years in South America installing and managing one of their telephone lines. A short time ago George returned to Colombia for an indefinite period. Bob Clyne is an assistant vice-president of the American Steel Foundries and has been very active in Technology affairs in Chicago as one of the directors of the club and chairman of its placement bureau. Tom has his own machinery business in Cleveland and was enjoying a Florida vacation in January. Tom still finds time to play much tennis, so we expect that he and Bob Nelson will resume the struggle for supremacy in the Class when we hold our reunion in 1950. They had quite a tussle at Saybrook in 1940, and Tom garnered the honors that time. Bob reports seeing Byron MacKusick, Ed Blake, and Bryce Spruill at the Chicago alumni meetings, and he used to see Trev Cramer, who is now running a plant for R. R. Donnelley in Crawfordsville, Ind. Art McCullough is now located in Newark, where he is vice-president of American Steel Castings. While in New York before Christmas, Bob talked with Bryant Kenney, who is with Standard Oil in Bayonne. — Remember the Alumni Fund! — PARKER H. STARRATT, *General Secretary*, 1 Bradley Park Drive, Hingham, Mass. ROBERT M. NELSON, *Assistant Secretary*, 332 South Michigan Avenue, Chicago, Ill.

### 1932

Tom Sears has charge of the committee for our 15th reunion and has made the following general plans. The dates are Saturday and Sunday, June 7 and 8; the place, Wentworth-by-the-Sea, Portsmouth, N.H. Details with regard to facilities and cost will be in the single mailing which he plans to send each of you. The success of the reunion depends entirely upon the number of you fellows who attend.

We wish to record the honor and responsibilities that have been placed upon our classmate Carroll Wilson by his appointment as general manager of the Atomic Energy Commission. Bob Semple has been appointed director of Monsanto Chemicals in the general development department. Since 1944, he has held the position of petroleum chemicals sales manager. Wes van Buren has been appointed assistant chief project engineer of the building materials division of the Armstrong Cork Company. Wes joined the Armstrong organization in 1937 as a project engineer. Henry Carlton has been appointed assistant manager of the Fireman's Fund and Western National indemnity companies for their Southern California departments at Los Angeles. He began work with the former of these companies as a safety engineer in May, 1935.

Let's make a special effort to see one another at the 15th reunion. — CLARENCE M. CHASE, JR., *General Secretary*, 1207 West 7th Street, Plainfield, N.J. *Assistant Secretaries:* CARROLL L. WILSON, National Research Corporation, 100 Brookline Street, Boston 15, Mass.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

### 1934

We are indebted to Fred Johnson for taking the time to write a letter outlining his activities. His effort in contributing to the '34 gossip column is much appreciated. Here is what he has to say: "I have read your appeal for news or letters so many times in The Review, I thought I would drop you a line. I, too, appreciate an answer to a request for material, as I recently received the appointment as secretary to the Northern California division of the National Scale Men's Association.

"Shortly after my tour of duty with Uncle Sam, which lasted five years and took me into the European Theater of Operations with the 63d Infantry Division as its ordnance officer through France and Germany, I rejoined my former concern, Fairbanks Morse and Company. Before the War, I had worked as one of their field engineers out of their Boston branch. Having become accustomed to moving about while in the Army, I hopped from one coast to the other and am now with their San Francisco branch. This time it is as scale department manager. We cover Northern California, Utah, Nevada, and a large section of Idaho — some piece of property for a boy from Boston! Uncle Sam treated me pretty well; I left the Army wearing eagles, after having gone in as a first lieutenant. During service I picked up the usual Bronze Star, Army Commendation Ribbon, and three battle stars, along with two Unit Citations.

"It was my pleasure to attend a recent meeting of the California Alumni held at the Fairmont Hotel in San Francisco. An excellent attendance of about 75 men had the good fortune to hear James R. Killian, Jr., '26, Vice-president of M.I.T., speak on 'The M.I.T. of Today and Tomorrow.' I understand that this was one of the many stops in his cross-country tour. He gave a most interesting analysis of M.I.T. before, during, and after the war, covering the Institute's postwar problems and their current solutions. His talk was well received by everyone. Although I did not personally meet any others from the Class of '34, I believe there were two more present. Our housing situation is as bad as indicated everywhere else in the States. My wife and little Sally Ann, now seven, have made our 'home' for the past year in a hotel. We are building, but as with all construction, progress is slow."

Daniel F. Shepherd, a lieutenant colonel, has been assigned to command of the 300th Ordnance Group, Syracuse, N.Y. The 300th Ordnance Group was activated in December of 1946 under the postwar program of the Organized Reserve. Colonel Shepherd began his military career as a second lieutenant in the Ordnance Reserve in 1934. His war service included tours of duty in the Office of the Chief of Ordnance as ordnance development officer. In the European Theater he served as ammunition officer for the Allied Force head-

quarters, as well as the Fifth Army, rising to the grade of lieutenant colonel before his separation. Among his awards are the French Croix de Guerre, a letter of commendation from General Mark Clark, the European Theater Ribbon with seven battle stars and arrowhead, and the Victory Medal. Colonel Shepherd holds a very responsible position as development engineer for the Carrier Corporation in Syracuse, one of the largest air-conditioning firms in America. He is a member of the Ordnance Association. He and Mrs. Shepherd reside at 404 Kirk Avenue, Syracuse, N.Y.

Robert H. Winters' wife, Eleanor, has dropped us a note from Lunenburg, Nova Scotia, to let us know what her husband is doing. Instead of writing it in the form of a lengthy narrative, she cleverly condenses it into verse: "There was a young man in VI-A/Hipped on science, tennis, and skating — /The father of three since that day,/Now he's shipping and legislating." By way of explanation, Colonel Winters is general manager of the Industrial Shipping Company at Mahone Bay, Nova Scotia, and is also a member of parliament for Queens-Lunenburg, N.S. — Steven L. Muther is planning a trip altarward with Mary-Louise Imrie, Lieutenant Commander, WAVES, daughter of Mr. and Mrs. Gordon McDonald Imrie of Rumford, R.I. Steven is now with the Raytheon Manufacturing Company in Newton.

Remember, fellows, a word or two about what you or one of our other classmates is doing will be greatly appreciated. This column is a means of keeping in touch with one another and keeping track of the activities of all the members of the Class. But we cannot print what we do not have. It is up to all of you. — JOHN G. CALLAN, JR., *General Secretary*, 184 Ames Street, Sharon, Mass. ROBERT C. BECKER, *Assistant Secretary*, Chile Exploration Company, Chuquicamata, Chile.

### 1935

Although the news is six or eight months old, many of us certainly have not heard that Biss Alderman has resigned from Voorhees, Walker, Foley and Smith, New York architects, to practice architecture on his own in Holyoke, Mass. Since graduation, Biss has studied architecture in Europe, taught architecture at the University of Washington and the Institute, practiced architecture with firms in Seattle, Boston, New York, and Portland, Maine, and destroyed architecture as an adviser to Eighth Air Force bombardiers. Biss is a member of the American Institute of Architects and has won prizes in three national architectural competitions. That's a lot of architecture and should stand him in good stead designing new and better buildings in central Massachusetts.

Just before Christmas, George Agnew, who, while at school, rowed on about all the crews there were, engaged a coxswain, Miss Anstes Valle Carr of Rosemont, Pa. — The mystery of Fiske King's whereabouts has been solved, but with few details. At least we know he is with the Socony Vacuum Oil Company, 4140 Lindel Boulevard, St. Louis. If a card to him gets results, there'll be more.

Jack Burton has furnished an interesting account of his activities during the war.

1939

In 1940 he left General Motors Diesel to accept a commission in the Office of the Chief of Ordnance and served two years as executive assistant to the Chief of Industrial Service on planning and construction for the United States armaments program. In 1942, Jack was sent to England to work on joint British-American preparations for the invasion of North Africa and expected to accompany the attacking forces. At just that time, however, he was assigned to General Eisenhower's staff in the Supreme Headquarters of the Allied Expeditionary Forces as chief United States ordnance representative. After D-Day he was ordered to the Continent and served in France, Belgium, and Germany with stations of some duration in Berlin and Frankfurt. While in England, Jack met and married Evangelia Del Sandys and shortly after V-E Day they had a son, J. R., 3d. This past January they had a second little boy, George, born in New York. Jack attained the rank of colonel and received his discharge early in 1946. At that time his wife and youngster came to this country, and Jack resumed a civilian occupation as board chairman and vice-president of the National Bank of Far Rockaway. Their home is on Long Island at 117 Onslow Place, Kew Gardens. — J. BARTON CHAPMAN, *Secretary*, 7 Lalley Boulevard, Fairfield, Conn.

## 1938

A few months ago, we reported the engagement of Doris Smith of Plainfield, N.J., to Harold Butler; we now hear that they were married in December. Harold is with the Standard Oil Company of New Jersey, and they will live in that state. — A prospective new oarsman is slated for the Class of 1967 at the Institute: the Don Weirs have a baby boy, David, born in December. The Weirs are now living in a new house they built last spring in Los Angeles and are a very happy family of five, with two daughters and a son.

We have news, also, of two members of our Class from India. Kantilal Shah arrived in Vineyard Haven, Mass., in December to join the rest of his family, who had spent the summer at Martha's Vineyard, and to see his newborn son for the first time. The whole family plans shortly to return to India, where they will make their home.

M. D. Parekh of Delhi, India, served on the textile mission to Japan sponsored by the United States Department of State for the purpose of determining Japan's productive capacity and what could be done to put that capacity to work in order that the Japanese might provide at least their own minimum requirements and, if possible, also contribute to the world textile needs. Dr. Parekh assisted H. Wickliffe Rose of the American Viscose Corporation in this work and in compiling a book, *The Rayon and Synthetic Fiber Industry of Japan*, based on the information thus gathered. The book has lately been published by the Textile Research Institute, Inc. — DALB F. MORGAN, *General Secretary*, Carbine and Carbon Chemicals Corporation, 30 East 42d Street, New York, N.Y. *Assistant Secretaries*: RICHARD MUTHER, 180 Elgin Street, Newton Center 59, Mass.; ALBERT O. WILSON, Jr., 32 Bertwell Road, Lexington 73, Mass.

With things becoming closer to normal now, we find these notes appearing almost with regularity; however, boys, let's make a concentrated effort to gather some news, instead of relying entirely on our most faithful "News Clip." Which brings us straight to the Lynn item saying that Carl Behrsing's engagement to Blanche Ostrowski was recently announced. Carl is currently a motor engineer in the motor division at the River Works of General Electric. Also entering the engagement field, we discover Fred Schaller now engaged to Alice Willard of Cambridge. Fred was with the Army Engineer Corps in the China-Burma-India theater. The Alumni Association sends word that Dick Gaines is now back from Colombia, where he worked for the Timmins Ochali Mining Company, at its Berlin mine. Dick can now be reached at 320 East 57th Street, New York City 22.

And it was a pleasure to see Dick Cella again in New York after too long an interval. Since leaving the Air Forces, Dick is taking graduate work in Aeronautical Engineering at the Institute. — STUART PAIGE, *General Secretary*, 701 Mill Plain Road, Fairfield, Conn. ROBERT C. CASSELMAN, *Assistant Secretary*, 271 Cypress Street, Newton Center 59, Mass.

## 1942

Gordon Brown, II-A, writes that he is working for the National Research Corporation in Boston as a mixture of mechanical engineer and physicist. Gordon is married and has one son. He is living in Reading, Mass. — Hans Aschaffenburg is employed as a test engineer by General Electric in Lynn, Mass. He is coach of the M.I.T. Ski Team.

Jack Altekroose writes as follows: "I am working at the Raytheon Manufacturing Company in Waltham on the development of hydraulic servomechanisms. I was married on September 8, 1945, to Audree Morgan (Wheeklock School, '45) from Philadelphia, Pa. I came to Raytheon in 1944 after spending two years at the Waterbury division of Vickers, Inc., on the design of hydraulic controls for Navy Ordnance."

Russell Brown writes us from New Mexico, saying, "News of interest? Well, none in particular other than the fact that I'm an Army private. This should give some of our classmates who were colonels, majors, and the like a chuckle. Fortunately, I'm not alone in my plight here in the Army; during the month of September, all who were single or who were married but had no children and who had not served in the armed forces entered the Army. In general, the Army has collected all engineers and scientists and others who fall within the above mentioned classification and has attempted, not altogether unsuccessfully, to utilize our various professional skills. We all look forward to becoming civilians again."

Theodore Nordin has been appointed to the staff of the Battelle Memorial Institute, Columbus, Ohio, where he will be engaged in research on the engineering properties of materials. He served as a lieutenant in the Navy during the war. — We have an announcement of the engagement of Barbara Anderson of Seattle to Curtis Buford. —

Mr. and Mrs. Albert E. Hayes announce the birth of Robert Clark Hayes on January 8.

Here is a letter from Robert Fay in Cleveland: "I am heeding your advice and passing along the first real information I've had in a long time. The two pieces of news seem self-explanatory. [The enclosures were an item about Curtis Buford's engagement, mentioned above, and that of his own to Loretta Ann Regan of Lakewood, Ohio. W. L.] Since I haven't seen Curt in four years, I'm a very poor primary source of information. Charles Smith is here at the Steele Improvement and Forge Company, very worried and very busy. John Ewing is also here at the Hertner Electric Company. As I recall, there was a baby recently, but I've forgotten the rest. I've seen Hank Titzler only once at a party given by Larry Turnock '41. Bill Folberth and others of the Class of '41 were there. I'd send you more information, but it's rather difficult. Larry and I are both in law school, planning a career in patent law, probably specializing in chemical patents. I shall finish in February, 1948, and Larry in June, 1948. Things look tough but promising."

A few members of the Class were present at the meeting of the Boston Alumni in Walker on February 8. We saw a very fine demonstration of television. Among those attending were Milton Platt, Lou Rosenblum, Stan Golemba, Brad Torrey, and Bob Howard with his fiancée. — Please let us know your ideas about a fifth reunion. Also, let's have more letters like those above. They make this job a pleasure. — WARREN S. LOUD, *Acting Secretary*, Room 2-272, M.I.T., Cambridge 39, Mass.

## 1943

Mr. and Mrs. Frank Bowdish announced the arrival of Caroline Corbett on January 4 of this year. They are living in Duluth, Minn., where Frank is in the research laboratory of the Oliver Iron Mining Company. Betty and John Scott became the proud parents of little Marianne Bell on last September 11. The Scotts are still at home in Baltimore. — On November 30 in Trinity Episcopal Church in Melrose, Doris Mae Cooper married Warner Smith. Tom Dyer was an usher. Doris is a graduate of the Simmons College school of business administration, which ought to make her an expert guardian of the family budget. The Smiths have made their home in East Orange, N.J. It is easy to see what Robert William Beatty's New Year's resolution must have been, for on the first of January he and Mary Stevens Johnson were married at St. Paul's Church in Washington, D.C. They spent their honeymoon in the Pocono Mountains in Pennsylvania and have returned to Arlington, Va., to set up housekeeping. — Cupid was quick to reload and has taken aim again recently in three directions, one target being Helen Brun of Staten Island and John Greening, who plan to be married this spring. John is an electrical engineer with the Western Electric Company in Kearny, N.J. A target in New England is Olyve Hill of Medford and Paul Brooks, whose engagement has been announced. Olyve is a graduate of the Peter Bent Brigham Hospital school of nursing and served for two years in a

mobile surgical unit in Europe. Paul, who was recently released from the Army Air Forces, is now a student at Northeastern University. Arrow number three is destined for Vera Cardillo of Roslindale, Mass., and Robert Moore, who has come ashore after two years in the merchant marine.

Frank Briber is with Allis-Chalmers in Milwaukee, in the crushing section of the basic industries department. He has not lost sight of extracurricular activities, however, for he has been elected vice-president of the Milwaukee club, which has recently been reactivated. — A short while ago Sid Siegel resigned from the Institute, where he was a staff assistant, to become a metallurgist for the General Plate division of the Metals Controls Corporation in Attleboro, Mass. — We have one of those having-a-wonderful-time-wish-you-were-here cards from Andrew Batiuchok, who writes from Hollywood that the sun shines all day. Apparently, from his address, he is still in naval aviation. — Andy Plonsky wrote recently that he has been with the New Haven Railroad since July, 1945, as an assistant engineer working on the installation and maintenance of electrical traction equipment in the electric locomotives. He says that he likes his work, especially in that the equipment is big enough to lean on! — Hans Haac, who was with the Counter Intelligence Corps in Germany before release from the Army last summer, has been at Columbia University working for his master's degree. — Eliot Payson has also embarked on graduate work. He is in the Business School at Harvard.

I can't quote the entire song, but this is all there is for this month, so if you want any more you will have to write it yourselves. — CLINTON C. KEMP, *General Secretary*, Barrington Court, 988 Memorial Drive, Cambridge 38, Mass.

#### 1944 (2-44)

Now that your Secretary has left the halls of the Institute for good, his source of information will have to be letters

written by the Class. If you haven't the time to write, ask your wife to jot a few notes down and send them to me. All I ask is a little news about you, your job and your activities, plus items about classmates. Since much of my information comes at second hand, errors are to be expected and will gladly be corrected if brought to my attention. Mal Kispert has taken over the chores of assistant secretary on the spot at the Institute. If you ever get in the neighborhood of Technology, be sure to look the old boy up. Jim Gallivan is our class agent and class representative who will attend the alumni meetings at the Institute.

A letter from Stan la Vallée is my only news this month. He states that he was married to Carol Carter last November in Hartford, Conn. Don Ross '43 was best man. Stan is still working in the United Aircraft research department. Hal Taylor, a former radar officer in the Navy, is working there also, as is John Chamberlain. Bert Nagy was a B-29 flight engineer who was reported missing in the summer of 1945. He had a number of missions over Japan. Phil Whitaker is said to be working for Consolidated Vultee Aircraft in San Diego, Calif. Al Martin went to work for Grumman after graduation and is still there. Al Litchfield is at Chance Vought. Mrs. Peggy Bowles worked for a time at United Aircraft research. Paul Lee worked for the M.I.T. Wright Brothers Wind Tunnel before he left to work for an exporter in New York. He was so much teased about being a member of the Black Dragon Society of Japan that he confessed to a dream one night about being sent to Japan on an exchange ship. Robert S. Burdick, a commander, is on the U.S.S. *Power* with a Fleet Post Office number from New York. Everitt Cole is reported to be in the coal city of Pittsburgh. Robert Estes has returned to his home town of Haines City, Fla. That northern climate of Virginia must have been too much for him. Robert A. Gillen is with the Creole Petroleum Corporation at Maracaibo, Vene-

zuela, South America. Stanley Skelskie is with the Welch Grape Juice Company in North East, Pa. — WILLIAM B. SCOTT, *General Secretary*, 6 Army War College, Washington, D.C. MALCOLM G. KISPERT, *Assistant Secretary*, Room 10-203, M.I.T., Cambridge 39, Mass.

#### 1946 (2-46)

It is with great regret that your Secretary announces the death of one of our classmates, DeForest Wead Meehlieb. Dee, in the company of another fellow and girl, set out on December 3 to climb Navajo Peak in Colorado. On their descent they slipped down an ice bank and fell, all tied together, to the rocks below. Two days later, he was found about 500 yards from the dead girl, unconscious, with a broken leg, and suffering from exposure and freezing weather. Dee's condition seemed to be improving in the days following his rescue until on December 10 he died of an unexpected blood clot.

Now fellows, here is a little good news: Ed Richardson and Marilyn Lucey were married on December 14. Carolyn Strauss has accepted a ring from Sam Gusman, setting no date as yet. Dorothy Miner's engagement to Fred Lyon was announced on January 5. Dot is a Wellesley senior. On January 11, John Mitchell and Elsie Johnson of Milton, said their "I do's." Betty McNally of West Concord became engaged to Mike Finigan on January 18.

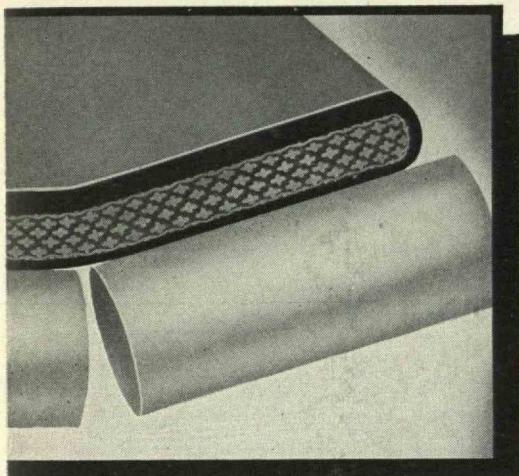
We have heard from Warren Lombard of Syracuse, N.Y., who is itching to get back and finish up. Shelton Johnson is the acting director of the Wood Research Institute, Oglethorpe University, Georgia. It sounds as if Bill Cahill, out in Beverly Hills, Calif., were enjoying the good old hickory slats once again. Bill is going to the University of California business school in Los Angeles. Bill says that Vince Butler is attending the Stanford business school. — JAMES S. CRAIG, *General Secretary*, 5 Rockingham Street, Lynn, Mass. THOMAS F. KELLEY, JR., 578 Andover Street, Lowell, Mass.

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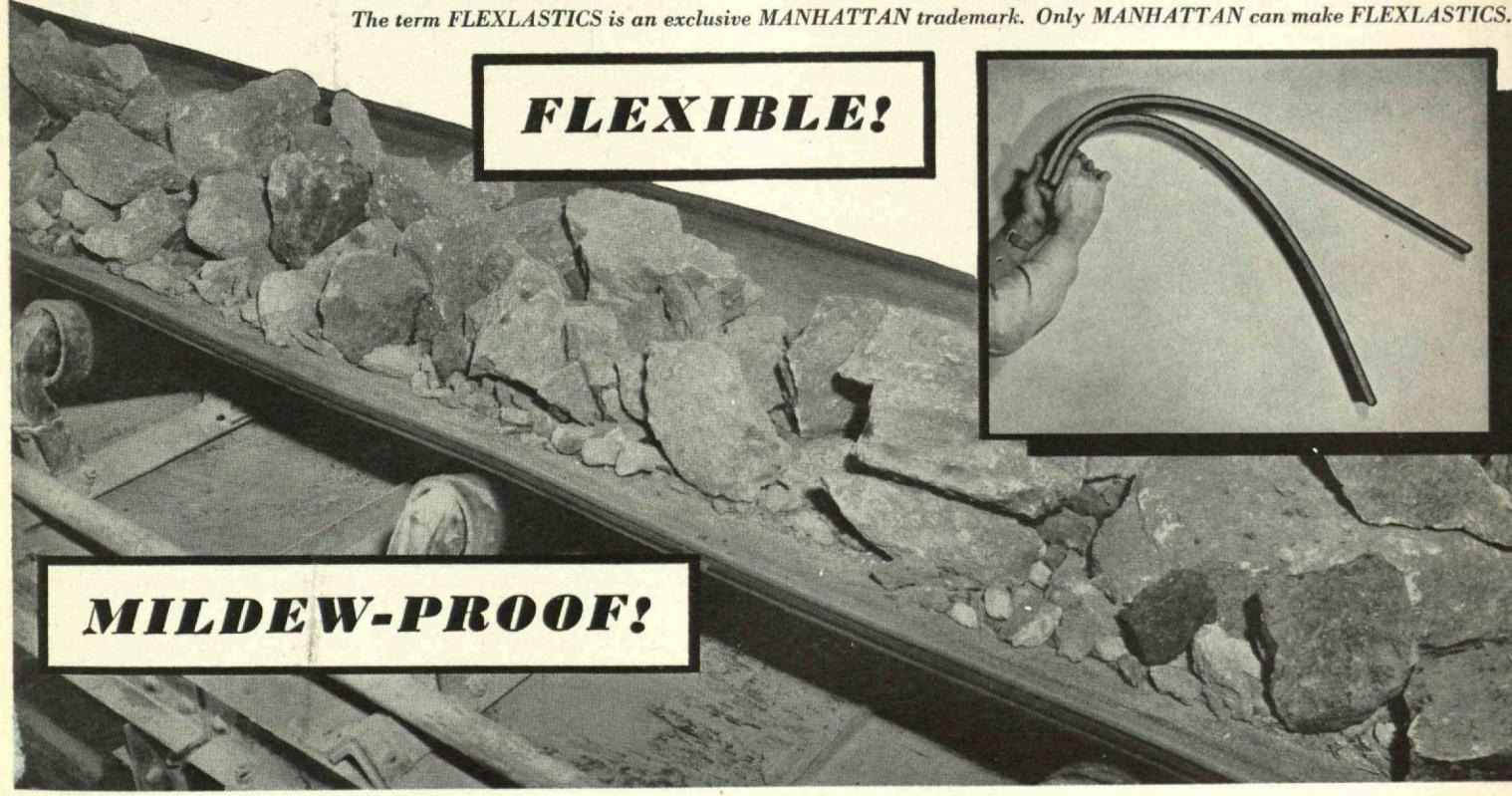
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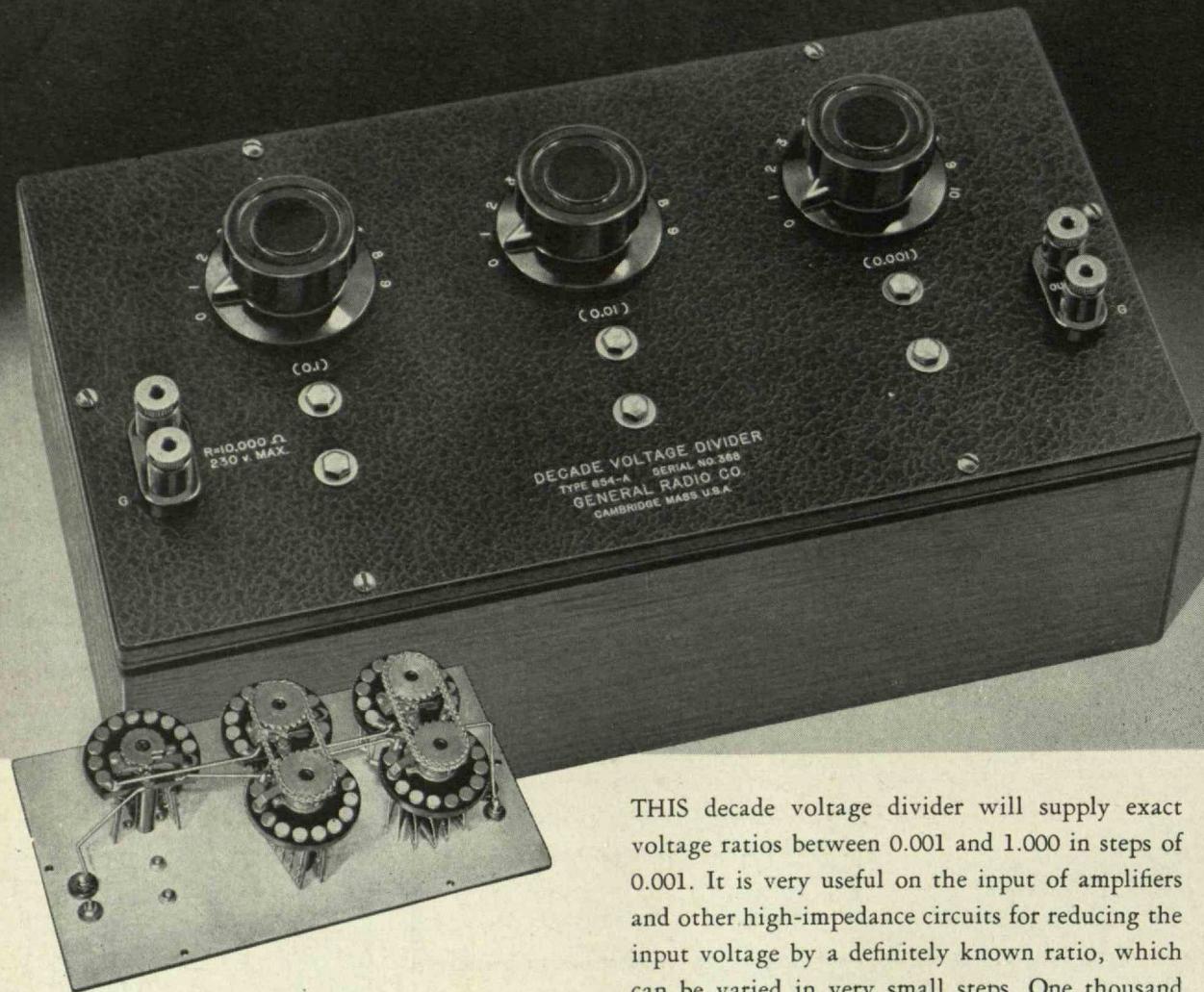
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